DOES NOT CIRCULATE

THE UNIVERSITY OF MICHIGAN

FEB 23 1961

MEDICAL LIBRARY

The Journal of The SOUTH CAROLINA Medical Association

Griseofulvin
Marfan's Syndrome
Renal Function Tests
The Prominent Auricle
Medical College Clinics
Tuberculosis In Children
Aspects of Adrenaline & Noradrenaline

VOLUME 57 FEBRUARY 1961 NUMBER 2

what does high "ABA" mean to you?

High serum levels of antibacterial activity mean fewer treatment failures in severe infections or in infections only marginally sensitive to penicillin. In other words, high "ABA" means . . .

consistently dependable clinical results

Lilly
QUALITY / RESEARCH / INTEGRITY

V-CILLIN K®
(penicillin V potassium, Lilly)

produces greater antibacterial activity in the serum against the common pathogens than any other available oral penicillin.

Now at lower cost to your patient

133217

In intestinal "grippe"

prompt 4 way check of diarrhea

- Curbs excessive peristalsis
- Adsorbs toxins and gases
- Soothes inflamed mucosa
- Provides intestinal antisepsis

POMALIN

TRADEMARK

Liquid

EFFECTIVE ANTIDIARRHEAL

FORMULA: *Each 15 cc. (tablespoon) contains:*

Sulfaguanidine U.S.P.	2 Gm.
Pectin N.F.	225 mg.
Kaolin	3 Gm.
Opium tincture U.S.P.	0.08 cc.

(equivalent to 2 cc. paregoric)

DOSAGE: **Adults:** Initially 1 or 2 tablespoons from four to six times daily, or 1 or 2 teaspoons after each loose bowel movement; reduce dosage as diarrhea subsides.

Children: ½ teaspoon (=2.5 cc.) per 15 lb. of body weight every four hours day and night until stools are reduced to five daily, then every eight hours for three days.

SUPPLIED: *Bottles of 16 fl. oz. (raspberry flavor, pink color)*
Exempt Narcotic. Available on Prescription Only.

Winthrop LABORATORIES
New York 18, N. Y.

The Journal of The
SOUTH CAROLINA
Medical Association

FEBRUARY, 1961 — VOL. 57 NO. 2

CONTENTS

EDITOR
OSEPH I. WARING, M. D.
2 Rutledge Avenue
harleston, S. C.

DITORIAL BOARD
P. CAIN
D. GUESS
J. MILLING
R. PRATT-THOMAS
INCE MOSELEY
EN MILLER
H. PRIOLEAU
W. JERVEY
D. JOHNSON
M. POLLITZER
ALE GROOM

DVERTISING MANAGER
IRS. B. MOTTE
09 West Evans St.
lorence, S. C.

OUTH CAROLINA MEDICAL ASSOCIATION OFFICERS 1960-1961
OSEPH P. CAIN, JR., President
J. WORKMAN, Vice President
HARLES N. WYATT, President-Elect
OBERT WILSON, Secretary
HOWARD STOKES, Treasurer

OUNCILORS
LAY EVATT, 1st District
F. BURNSIDE, 2nd District
J. SCURRY, 3rd District
P. BOOKER, 4th District
OHN BREWER, 5th District
M. PERRY, 6th District
ORMAN EADDY, 7th District
H. GRESSETTE, 8th District
M. FLEMING, 9th District

DELEGATES TO THE AMERICAN MEDICAL ASSOCIATION
Delegates
WILLIAM WESTON, JR.
GEORGE DEAN JOHNSON
Alternates
FRANK OWENS
C. N. WYATT

EXECUTIVE SECRETARY AND BUSINESS MANAGER
MR. M. L. MEADORS
309 West Evans Street
Florence, S. C.

THE JOURNAL OF THE SOUTH CAROLINA MEDICAL ASSOCIATION—Published monthly by The South Carolina Medical Association, 309 West Evans Street, Florence, South Carolina. Subscription Price: $5.00 a Year. Second Class Postage Paid at Greenville, S. C.

ORIGINAL ARTICLES

Physiopharmacological and Clinical Aspects of Adrenaline and Noradrenaline—*A. F. De Schaepdryver* 45

Griseofulvin: Therapy for Superficial Fungus Infections—*Kathleen A. Riley* 51

On the Interpretation of Renal Function Tests in Renal Disease—*Cheves McC. Smythe* 56

Ten Years Experience With Tuberculosis in Children in Charleston County—*J. R. Paul, Jr. & Marjorie Mengedoht* 61

Marfan's Syndrome—*John O. Fulenwider* 65

The Prominent Auricle—*Carter P. Maguire* 66

MEDICAL COLLEGE CLINICS

Electrocardiogram of The Month—Digitalis Toxicity—*Dale Groom, M. D.* 69

EDITORIALS

Dr. Crawford Upholds the Family Physician 76

Madison Avenue Goes To Mississippi 76

Autogenous Vaccine Therapy In Stephlococcic Infection 76

The Case of Iron-Dextran (Imferon) 77

Infant Mortality In South Carolina, The Changing Picture 77

Solving The Problem of The Crippled 78

Public Relations Speakers Bureau 79

Red Cross: Good Things Happen 79

Selective Service Might Consider Special Doctor Call 80

Medical College Chancellor Honored 81

FEATURES

Book Reviews 68

The Changing Images of Doctors Today 70

President's Pages 72

News 87

Announcements 92

Contributions of Original Articles

Length of Article—Ordinarily articles should not exceed 3,000 words (approximately 3 printed pages). Under exceptional circumstances only will articles of over 4,000 words be published.

Manuscripts—Manuscripts should be typewritten, double spaced, and the original and a carbon copy submitted.

Illustrations—Ordinarily publication of 2 or 3 illustrations accompanying an article will be paid for by THE JOURNAL. Any number beyond this should be paid for by the author.

References—Should conform to the following order: name of author, title of article in small letters, name of periodical, with volume, page, month, day of the month if weekly, and year—e. g.: Lee, G. S.: The heart rhythm following therapy with digitalis, Arch. Int. Med., 44:554, Dec. 1942. They should be listed in alphabetical order and numbered in sequence. Standard abbreviations for Journals should be used. Other abbreviations should also be standard—e.g. mg., ml., Gm.

Reprints—Reprints will be made for the author at established standard rates.

True S-U-S-T-A-I-N-E-D Action in Steroid Therapy

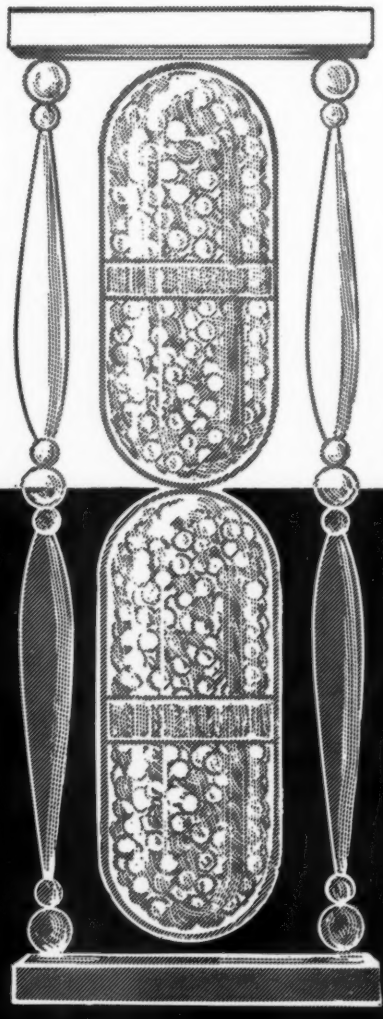
PREDLON™
PELSULES*

prednisolone

Only 2 Pelsules Daily

Maintenance Dose

- **Better therapeutic response**
- **Reduced daily dosage**
- **Fewer side effects**
- **Greater safety, convenience and economy**



Now, for the first time, the benefits of steroid therapy are enhanced by sustained release PREDLON PELSULES.

USES: Rheumatoid arthritis, disseminated lupus erythematosus, allergic diseases, and other conditions where the use of steroids is indicated.

SUPPLY: PREDLON 5 mg. is available in bottles of 30 and 100 Pelsules.

DRUG Specialties INC.

Samples and Literature on request

WINSTON-SALEM 1, NORTH CAROLINA

*trademark for timed disintegration capsules

The Journal
of the
South Carolina Medical Association

VOLUME 57 February, 1961 NUMBER 2

PHYSIOPHARMACOLOGICAL AND CLINICAL ASPECTS OF ADRENALINE AND NORADRENALINE

A. F. De SCHAEPDRYVER, M. D.

Fulbright Research Scholar, U. S. Educational Foundation in Belgium, and Riker Fellow from the J. F. Heymans Institute of Pharmacology, University of Ghent; Associate, National Fund for Scientific Research, Belgium.

Both the sympathetic ganglionic tissue and the chromaffin tissue embryologically stem from cells which have their origin in the ectodermic neural crest. The largest part of the chromaffin tissue is represented by the suprarenal medulla. Less important cell groups follow the sympathetic ganglionic cells in their migrations, thus forming the accessory chromaffin tissue.

The embryological and anatomical similarity of sympathetic ganglionic cells and suprarenal medulla has its physiological counterpart. Indeed, in both structures the preganglionic transmission of the nervous impulses is mediated by acetylcholine, while the postganglionic and postmedullary effector substance corresponds to noradrenaline, respectively adrenaline + noradrenaline.

The proportions of both hormones in the suprarenal medulla vary according to the species. Thus in man and dog the adrenaline percentage represents about 80% of the total catecholamine content, in cat about 60% and in rabbit up to 99%. It is noteworthy that in the foetus the catecholamine content of the suprarenal medulla almost exclusively pertains to noradrenaline.[1]

Lecture given on February 1, 1960 to the Medical Research Seminar, Medical College of South Carolina.

Physiopharmacological aspects

In recent years much work has been done in order to elucidate the biosynthesis and biological inactivation of adrenaline and noradrenaline. It is now generally agreed that the starting point of the formation of both neurohormones lies in the amino-acid phenylalanine, while their metabolism mainly consists in enzymatic inactivation by catechol-O-methyl transferase[2] and monoamine oxidase,[3] a small percentage being excreted in the urine either in free or in conjugated form.[4]

Various problems with relation to the physiological and pharmacological mechanisms acting upon the secretion of adrenaline and noradrenaline, however, have remained either untouched or controverted, mainly due to the fact that specific and sensitive estimation procedures have been lacking until recent years. Using the highly specific fluorimetric method of differential estimation of the trihydroxyindole derivatives of adrenaline and noradrenaline[5, 6] we have thought it of interest to investigate some of these problems.

Thus the suprarenal medullary output of adrenaline and noradrenaline was studied in the suprarenal venous blood of dogs, in basal conditions and after stimulations of various origin.[7]

These experiments, the results of which are schematically presented in Fig. 1 and Fig. 2,

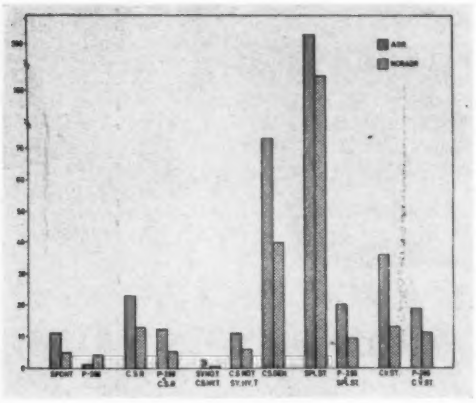


Figure 1

Suprarenal secretion of adrenaline and noradrenaline in dogs in .001 mcg/kg/min.

SPONT. : spontaneous secretion.
P-286 : after P-286 (2.5 mg/kg).
C.S.R. : during occlusion of both common carotid arteries (carotid sinus reflex).
P-286 + C.S.R. : after P-286 (2.5 mg/kg) and during occlusion of both common carotid arteries (Carotid sinus reflex).
SY.NO.T. : during systemic normotension and
C.S.HY.T. carotid sinus hypertension.
C.S.NO.T. : during carotid sinus normotension and
SY.HY.T. systemic hypertension.
C.S.DEN. : after carotid sinus denervation.
SPL.ST. : during splanchnic stimulation.
P-286 + SPL.ST. : after P-286 (2.5 mg/kg) and during splanchnic stimulation.
C.V.ST. : during central vagal stimulation.
P-286 + C.V.ST. : after P-286 (2.5 mg/kg) and during central vagal stimulation.

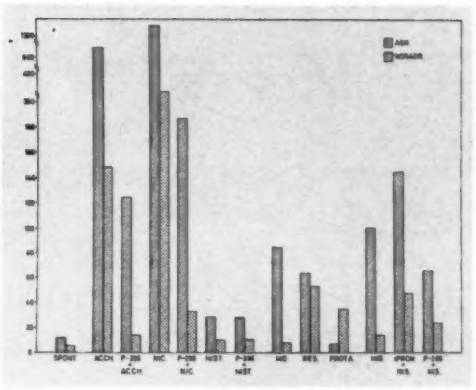


Figure 2

Suprarenal secretion of adrenaline and noradrenaline in dogs in .001 mcg/kg/min.

SPONT. : spontaneous secretion.
AC.CH. : after acetylcholine (2 mg/kg) in atropinized animals.
P-286 + AC.CH. : after P-286 (2.5 mg/kg) and acetylcholine (2 mg/kg) in atropinized animals.
NIC. : after nicotine (0.1 mg/kg).
P-286 + NIC. : after P-286 (2.5 mg/kg) and nicotine (0.1 mg/kg).
HIST. : after histamine (50 mcg/kg).
P-286 + HIST. : after P-286 (2.5 mg/kg) and histamine (50 mcg/kg).
MO. : after morphine (2 mg/kg).
RES. : after reserpine (2 mg/kg).
PROT.A. : after protoveratrine A (4 mcg/kg).
INS. : after insulin (10 I.U./kg).
IPRON. : after iproniazid (50 mg/kg) and insulin (10 I.U./kg).
P-286 + INS. : after P-286 (2.5 mg/kg) and insulin (10 I. U./kg).

first showed that in 48 dogs under morphine-chloralosane anesthesia the spontaneous basal secretion from the left suprarenal gland ranged from .002 to .008 mcg/kg/min for noradrenaline and from .0045 to .0181 mcg/kg/min for adrenaline.

It was shown by Heymans[5, 9] as long as 30 years ago that the systemic arterial blood pressure level has an influence upon the suprarenal medullary secretion and that this effect is elicited essentially via the carotid sinuses.

In order to obtain quantitative data concerning the amounts and proportions of medullary hormones released under varying blood pressure conditions at the carotid sinus baroreceptors, experiments were performed in vagotomized dogs, in which the suprarenal venous blood was assayed in different conditions of arterial pressure at the level of the carotid sinuses.

It was observed that occlusion of both common carotid arteries provoked a twofold increase in total medullary output, without significant changes in the adrenaline/noradrenaline ratio. Denervation of both carotid sinuses induced a sevenfold increase in total medullary output, with a slight predominance of the noradrenaline fraction. In other experiments hypertension was provoked locally at the level of both carotid sinuses, using the "isolated innervated sinus preparation". By this procedure the suprarenal secretion of noradrenaline could be reduced to nearly zero whereas the adrenaline secretion was completely blocked. On the other hand, systemic hypertension, provoked by intravenous in-

fusion of ephedrine hydrochloride, in presence of normotension at the level of the carotid sinuses, did not reduce suprarenal medullary secretion.

It was further shown that electric stimulation of the splanchnic nerves resulted in a marked increase in both adrenaline and noradrenaline secretion, up to a twentyfold of the basal secretion rate, while stimulation of the central end of the cut vagi provoked not more than a threefold increase in suprarenal medullary secretion, thus showing that the strong hypertensive reaction which occurs in this case is mainly of vasomotor origin and accessorily due to an increased output of suprarenal medullary hormones.

Various pharmacological substances were also studied with regard to their influence on suprarenal medullary secretion. It was observed that intravenous administration of acetylcholine in atropinized animals and of nicotine in intact animals was followed by a considerable increase, up to a hundredfold of the basal secretion in the latter case, in suprarenal adrenaline and noradrenaline output. The increase in suprarenal medullary output is much less pronounced after histamine and morphine. In all cases the adrenaline/noradrenaline ratio was increased.

The medullary reaction appeared to be quite different after administration of reserpine, in which case the increase in suprarenal catecholamine secretion essentially pertained to the noradrenaline fraction. This increase was most evident one hour after the administration of reserpine, when a sevenfold increase in total catecholamine output from the adrenal medulla was observed. These observations show that the suprarenal catecholamine depletion provoked by reserpine is not only due to an enzymatic destruction in situ under influence of monoamine oxidase, but also to a direct secretory effect of reserpine. The noradrenaline predominance was still more pronounced after protoveratrine A, which produced a preferential secretion of noradrenaline.

The pattern of response was quite different after insulin, the increase in medullary output being confined to the adrenaline fraction. Occasional increases in noradrenaline output after insulin should be attributed to unsatisfactory circulatory conditions associated with the pronounced hypoglycemic state rather than to hypoglycemia itself. The predominance of an hypersecretion of adrenaline during insulin hypoglycemia was further demonstrated by the fact that after restoration of the blood glucose level by infusion of glucose the increase in adrenaline output dropped from a tenfold to less than a twofold increase in basal secretion, whereas the enhanced noradrenaline output was initially unaffected. It is also noteworthy to mention that after administration of iproniazid the medullary response to insulin is more pronounced.

It was also thought of interest to examine the possibility of a pharmacological blockade of the suprarenal secretory response to physiological and pharmacological stimulation of the suprarenal medulla. It is known that ganglionic blocking drugs may inhibit medullary secretion, but these substances also block other sympathetic ganglia and eventually parasympathetic ganglia, thus producing unwanted side effects. A substituted urea derivative, N, N-di-isopropyl-N'-isoamyl-N'-diethylamino-ethylurea hydrochloride (P-286[+]), which seemed to reduce the rise in arterial blood pressure provoked by splanchnic stimulation or by acetylcholine administration in atropinized dogs,[10] was studied with regard to its action on suprarenal medullary secretion. It was shown that this substance exerts a selective medullary blocking action without provoking, in the dosage used, a depression of either ortho- or parasympathetic ganglia. Thus in intact animals the medullary secretion of adrenaline could be almost completely inhibited, whereas the medullary noradrenaline secretion was reduced in a lesser degree. The same medullary blocking properties were also observed with regard to the medullary response to occlusion of both common carotid arteries, stimulation of the central end of the cut vagi, injection of acetylcholine in atropinized animals and of nicotine in intact animals. It is of interest to note that this substance was found unable to prevent the enhanced suprarenal medullary secretion after histamine,

[10] P-286 was kindly supplied by Pitman-Moore Comp., Indianapolis, Ind.

thus suggesting a peripheral mode of action of the latter substance with regard to its medullary stimulating properties.

Beside the data pertaining to each particular substance used, this series of experiments gives pharmacological proof for the possibility of a differential or even a preferential secretion of medullary adrenaline and noradrenaline, thus implying that noradrenaline is to be considered not only as the adrenergic neurohormone or as the medullary adrenaline precursor but also as an independent medullary hormone. Additional evidence for this viewpoint was given in recent years by various investigators, using histological and physiological techniques, involving direct hypothalamic, neuroreflex and chemoreflex stimulation of suprarenal medullary secretion.[11-16]

In a more general way it may also be concluded that the experimental design used in these experiments may give valuable informations in the screening of pharmacological substances with potential stimulating or inhibiting effects on the suprarenal medulla and in the study of the mode of action of these drugs.

Clinical aspects

Since functional exploration of the suprarenal medulla by direct estimation of the medullary hormones in suprarenal venous blood may only exceptionally be performed in man, estimation of the urinary catecholamines may be considered at present as the most reliable and practical test of suprarenal medullary function as well as of nervous sympathetic function in general.

Postural hypotension is a clinical example of hypofunction of the medullo-sympathetic system. In typical cases the inability to maintain a normal arterial blood pressure in the erect position is associated with the presence of low urinary excretion figures of adrenaline and especially of noradrenaline. Moreover, the catecholamine secretory reaction to injection of histamine and insulin is absent, showing a functional insufficiency of the medullo-sympathetic system.[17] Postural hypotension has been reported as a syndrome on its own or as a concommittant symptome of tabes dorsalis and syringomyelia and as a sequence of sympathectomy.[18]

Hyperfunction of the chromaffin cell tissue occurs in cases of chromaffin cell tumor. These tumors may be classified into suprarenal chromaffinomas, or pheochromocytomas, and extrasuprarenal chromaffinomas, which usually originate from the ganglia of the sympathetic chain, but may as well be located in other parts of the body. Chromaffinomas may have a single or multiple localization, occur in children as well as in adults, be found repeatedly in the same family and be malignant in some cases.

The fact that the diagnosis of chromaffinoma has for a long time been the result of an autopsy finding, and that its presence is still often overlooked is not only due to its widely varying symptomatology and to the fact that a considerable percentage occur in cases of sustained hypertension, but also to the lack of reliable diagnostic tools.

Palpation of the tumor is rarely possible. Pheochromocytomas may be visualized by plain roentgenography in about 20% of cases, by intravenous or retrograde pyelography in about 35% of cases and by retroperitoneal gas insufflation in about 50% of cases.

On the other hand, it is known that the various pharmacological tests — provocative as well as blocking — may give falsely positive or falsely negative results. This disadvantage, together with the eventual occurrence of unwanted side-effects, considerably restrict their clinical value.

Ten years ago, Engel and von Euler[19] observed that large amounts of adrenaline and noradrenaline were excreted in the urine in two surgically controlled cases of pheochromocytoma. This finding was since repeatedly confirmed.[20-22] Moreover, a good correlation could generally be observed between the amounts of noradrenaline and adrenaline excreted in the urine and the amounts present in the blood and in the tumor, showing that the excretion rate of the catecholamines in the urine really reflects the activity of the tumor.

While the finding of considerable amounts of urinary catecholamines may clearly prove the presence of a chromaffin cell tumor, differential estimation of these hormones may give valuable information with regard to the localization of the tumor. Thus suprarenal chromaffinomas usually release adrenaline as well as

noradrenaline, whereas a chromaffinoma secreting only noradrenaline is usually located outside the suprarenals.

Using the fluorimetric trihydroxyindole method for differential estimation of adrenaline and noradrenaline, more than 700 estimations of urinary catecholamines were carried out in 332 patients. In 8 of these patients the presence of a chromaffin cell tumor could be diagnosed with certainty.

The urinary excretion figures of adrenaline and noradrenaline observed in these cases, and the weight and catecholamine content of the tumor in those cases in which the tumor could be assayed after removal are presented in Table I.

Case No.	Age (Years)	Sex	Type of hypertension	Localization	Average urinary output in mcg/24 hrs.		Catecholamine content of tumor in mg/g		Tumor weight in g
					Noradrenaline	Adrenaline	Noradrenaline	Adrenaline	
1	7	M	Paroxysmal	At site of right adrenal	188	33	—	—	—
2	17	F	Permanent + Paroxysmal	Between pubis and urinary bladder	724	12	0.67	0	40.6
3	26	F	Permanent	Thoracic sympathetic chain	264	7	0.50	0.12	3
4	21	F	Paroxysmal	At site of right adrenal	808	42	0.75	0.15	32
5	38	M	Paroxysmal	At site of right adrenal	644	19	0.59	0.02	20.6
6	46	M	Permanent + Paroxysmal	—	744	273	—	—	—
7	42	M	Paroxysmal	At junction of left ureter and urinary bladder	884	9	2.44	0	97
8	21	M	Permanent	At site of left adrenal	21	216	—	—	220
9	58	M	Permanent	—	124	10	—	—	—
10	45	F	Permanent	—	120	8	—	—	—

TABLE I

Adrenaline and noradrenaline content of urine and of extirpated chromaffinomas in 8 patients with chromaffin cell tumor.

In Cases 9 and 10 of this Table the presence of a chromaffin cell tumor is very probable but certainty has still to be verified by further estimations.

It is noteworthy to mention that repeated mecholyl tests had given falsely negative results in Case 4.

The highest excretion figures have been observed in Case 6 in urine collected during and after an hypertensive attack, the excretion figures amounting to 1588 mcg/24 hrs. for noradrenaline and 432 mcg/24 hrs. for adrenaline. In this case[23] a voluminous pheochromocytoma, weighing 413 g and containing 1.22 mg/g of adrenaline and 1.85 mg/g of noradrenaline, had been removed two and a half years before our first estimation of urinary catecholamines. Moreover, while the hypertension presented by this patient prior to the removal of the pheochromocytoma belonged to the permanent type, the recidive dealt with here is characterized by the occurrence of paroxysmal attacks of hypertension. Finally, the patient recently presented a tumor metastasis in a rib, which on biopsy showed the presence of chromaffin tissue and an adrenaline content of 3.5 mcg/g; no noradrenaline could be detected.

The average excretion figures in Case 8 were pre-operatively of 21 mcg/24 hrs. for noradrenaline and 216 mcg/24 hrs. for adrenaline and post-operatively of 23 mcg/24 hrs.

Case No.	Collection of urinary catecholamines	Calculated output of catecholamines from chromaffinoma in mg/24 hrs.		Catecholamine content of tumor in mg.		Amount of catecholamines secreted in 24 hrs., in per cent of tumor content	
		Noradrenaline	Adrenaline	Noradrenaline	Adrenaline	Noradrenaline	Adrenaline
2	At lowest excretion rate	3.2	—	27.2	0	11.8	—
	At highest excretion rate	34.3	—			126.1	—
3	At lowest excretion rate	4.4	0.40	1.5	0.36	293.3	111.1
	At highest excretion rate	7.8	0.64			520	177.7
4	During + after paroxysmal attack	19.2	0.85	24	4.8	80	17.7
5	During + after paroxysmal attack	15.1	0.27	12.1	0.4	124.8	67.3
7	During + after paroxysmal attack	40.3	—	236.7	0	17	—

TABLE II

Relationship between calculated output of adrenaline and noradrenaline from chromaffinoma, based on urinary excretion before operation, and catecholamine content of tumor, estimated after surgical removal.

for noradrenaline and 6 mcg/24 hrs. for adrenaline. We do not know of any other case in the literature in which enhanced excretion of adrenaline only was reported. This finding could unfortunately not be confirmed by assay of the tumor content since the tumor was not available for fluorimetric estimation.

While the finding of excessive amounts of catecholamines or, as shown recently by various investigators,[24-27] of some of their metabolites, in the urine, may give decisive proof of the presence of a chromaffin cell tumor, the collection of blood samples, drawn by catheterization from different levels of the vena cava system, and the subsequent assay of these blood samples may give most helpful informations with regard to the localization of the tumor. This was illustrated in Cases 2, 3 and 7 of Table I.

By comparing the urinary excretion of catecholamines in chromaffinoma patients with the catecholamine content of the tumor one may obtain an estimate of the rate of resynthesis in chromaffin cell tumors,[28] as shown in Table II. The calculations reported in this Table are based on the observation that about 4% of administered catecholamines are excreted unchanged in the urine.[29, 30] The data reported suggest a rather high rate of resynthesis of catecholamines in chromaffin cell tumors, thus confirming experimental observations with radioactive tracers reported by Sjoerdsma and co-workers.[31]

REFERENCES

1. Hökfelt, B. Acta physiol. scandinav., 1951, 25: Suppl. 92.
2. Axelrod, J. Physiol. Rev., 1959, 39 : 751.
3. Blaschko, H. Pharmacol. Rev., 1952, 4 : 415.
4. Euler, U. S. von, Luft, R. & Sundin, T. Acta physiol. scandinav., 1954, 30 : 249.
5. Euler, U. S. von & Floding, I. Acta physiol. scandinav., 1955, 33, Suppl. 118 : 45.
6. De Schaepdryver, A. F. Arch. internat. pharmacodyn., 1958, 115 : 233.
7. De Schaepdryver, A. F. Arch. internat. pharmacodyn., 1959, 121 : 222.
8. Heymans, C. Compt. rend. Soc. biol., 1929, 100 : 199.
9. Heymans, C. Compt. rend. Soc. biol., 1929, 100 : 765.
10. Weaver, L. C., Abreu, B. E., Alexander, W. M. & Richards, A. B. Arch. internat. pharmacodyn., 1959, 121 : 415.
11. Blaschko, H. & Welch, A. D. Arch. exper. Path. u. Pharmakol., 1953, 219 : 17.
12. Eränkö, O. Acta endocrinol., 1955, 18 : 174.
13. Hillarp, N.—A. & Nilson, B. Acta physiol. scandinav., 1954, 31, Suppl. 113 : 79.
14. Euler, U. S. von & Folkow, B. Arch. exper. Path. u. Pharmakol., 1953, 219 : 242.
15. Dunér, H. Acta physiol. scandinav., 1954, 32 : 63.
16. Euler, U. S. von & Folkow, B. Acta physiol. scandinav., 1958, 42 : 313.
17. Luft, R. & Euler, U. S. von. Metabolism, 1952, 1 : 179.
18. Ellis, L. B. & Haynes, F. W. Arch. Int. Med., 1936, 58 : 773.
19. Engel, A. & Euler, U. S. von. Lancet, 1950, 259 : 387.

20. Goldenberg, M. & Rapport, M. M. Meet. Soc. Clin. Invest., May 1951.
21. Lund, A. Scandinav. J. Clin. & Lab. Invest., 1952, 4 : 263.
22. Pekkarinen, A. & Pitkänen, M.—E. Scandinav. J. Clin. & Lab. Invest., 1955, 7 : 8.
23. Van Staey, J. & Boels, W. Belg. tijdschr. geneesk., 1957, 13 : 425.
24. Armstrong, M. D., McMillan, A. & Shaw, K. N. F. Biochim. et biophys. acta, 1957, 25 : 42.
25. LaBrosse, E. H., Axelrod, J. & Sjoerdsma, A. Fed. Proc., 1958, 17 : 386.
26. Sjoerdsma, A., Leeper, L. C., Terry, L. L. & Udenfriend, S. J. Clin. Invest., 1959, 38 : 31.
27. Kraupp, O., Stormann, H., Bernheimer, H. & Obenaus, H.: Klin. Wchnschr., 1959, 37 : 76.
28. Euler, U. S. von. In: Hormone Production in Endocrine Tumours (A Ciba Found. Colloquium), London, 1958, 268.
29. Euler, U. S. von & Luft, R. Brit. J. Pharmacol., 1951, 6 : 286.
30. Goldenberg, M. Am. J. Med., 1951, 10 : 627.
31. Sjoerdsma, A., Leeper, L. C. & Udenfriend, S. Fed. Proc., 1957, 16 : 336.

GRISEOFULVIN: THERAPY FOR SUPERFICIAL FUNGUS INFECTIONS

KATHLEEN A. RILEY, M. D.

Associate Professor of Dermatology, The Medical College of South Carolina, Charleston.

Griseofulvin is the first antifungal antibiotic which has proven effective by oral administration in the treatment of superficial mycoses or so called "ringworm infections." These infections are caused by a group of fungi called the dermatophytes which include the Microsporum, Trichophyton and Epidermophyton. They have always been resistant to treatment and have produced a therapeutic problem as locally applied medications were unable to penetrate deeply enough to reach the fungi in the keratin layer of the skin, hair and nails. The clinical pictures of these infections are described according to the areas of the body involved, such as tinea pedis (athlete's foot), tinea capitis, tinea corporis and tinea unguium.

Griseofulvin was first isolated in England in 1939 by Oxford and his associates[1] from *Penicillium griseofulvin Dierck.* In that same year Fleming discovered the antibiotic effect of penicillin, and like penicillin, griseofulvin was known for many years before its value to man was appreciated. It was nineteen years later in 1958 that Gentles[2] and his associates reported its effectiveness against induced ringworm infections in guinea pigs. Within the year studies were done showing that the drug was effective in humans with ringworm infection. These first studies were done by three different groups, Riehl[3] in Austria, Williams and associates[4] in England and Blank and Rolf[5] in the United States. During the first year of its use, the evaluation of the drug has been rapid and its use extensive. It has also been tried in patients with fungus infections other than ringworm and has been found ineffective in moniliasis (candiasis), North American blastomycosis, histoplasmosis, actinomycosis, crytococcosis and tinea versicolor.

The chemical structure of griseofulvin has been established by several investigators, to have the following formula:

Griseofulvin

It is the fermentation product of three species of Penicillium: *P. patulu, P. griseofulvum and P. janczewski.* It is a colorless, odorless, neutral, thermostable antibiotic, only very slightly soluble in water. Its absorption, excretion, utilization by tissue and mode of action are obscure. However, in 1946 Brian[6] isolated a substance which he called the "curling factor" as it caused the development of abnormal, fungal hyphae, showing shriveled and stunted growth. This substance was shown by Grove and McGowan[7] in 1947 to be identical with griseofulvin. Thus griseofulvin exerts a fungistatic and not a fungicidal effect.

Gentles[8] first demonstrated the presence of therapeutically used griseofulvin in hair of infected guinea pigs, and theorized that eradication of mycotic infection was due to the presence of griseofulvin in keratin. This was subsequently proven to be true as griseofulvin

is effective by disturbing the metabolism of fungi by direct contact, preventing the invasion of the fungus into the keratin. As the epidermis desquamates and the hair and nails grow out, the infection is actually shed. This explains why the treatment has to be prolonged. The duration of treatment required for the different areas infected varies depending on the time required for the normal replacement of the infected tissue.

When the drug is given orally, it is absorbed through the intestinal tract and incorporated in the keratin. It is not yet clear whether the drug is absorbed and used in its original form. It is not an antibacterial antibiotic and its prolonged administration does not disturb the normal intestinal tract.

Clinical Studies

This clinical study was done on ambulatory patients in the author's private practice. A series of 41 patients with 63 sites of major involvement with superficial fungus infections, proven by culture, were treated with griseofulvin.* They ranged in age from 3 years to 76 years. There were 27 white males and 14 white females.

The optimum daily dose for griseofulvin has not yet been established but the effective therapeutic dose for the average adult seems to be 1.0 gram per day. This dosage was used in all patients except children whose weight was under 60 pounds. They received 0.5 grams a day. The drug was given in divided doses, four times a day after eating. No local treatment was used.

All patients were cultured before treatment and every week for one month, then every 2 weeks until two negative cultures were obtained. In nail infections cultures were done every month. Laboratory studies including complete blood counts, urinalysis, cephalin flocculation tests and blood urea nitrogen levels were done at the beginning of treatment and at the end of treatment on 28 of the patients.

In general, species of the dermatophytes respond in like manner to similar doses of griseofulvin. But speed of response depends on the rate of keratinization and the time necessary for desquamation. So it is more convenient to discuss response to therapy by the major site of involvement than by organism.

Tinea Corporis may present a wide variety of clinical pictures varying from the involvement of a very small area to extensive lesions. The commonest clinical picture is the annular, erythematous, papulo-squamous lesion. The central area may be scaly and the advancing active edge studded with vesicles and pustules. When these lesions are confined to the groin area, they are called tinea cruris. When they are confined to the axilla, they are called tinea axillaris.

Tinea Corporis, including tinea cruris and tinea axillaris was treated in 13 patients with 18 different areas involved. Of these 14 were trichophyton rubrum infections of 1 to 16 years duration. One-half of these patients had been infected for 15 years or longer. Two patients had trichophyton mentagrophytes infections of 3 months duration and 2 had a microsporum canis infection of one months duration.

Pruritus was relieved in 75% of the patients within 3 days. It was relieved in all patients within 7 days. The most dramatic clinical clearing was in extensive tinea corporis of long duration.

Negative cultures were obtained in 7 cases after 2 weeks, in 4 cases after 3 weeks, in 6 cases after 4 weeks and in 1 case after 5 weeks. All patients were clinically well in 1 to 2 weeks despite the fact that some were culture positive, which emphasizes the need for cultures to determine cure. All patients were clinically well and culture negative within 5 weeks.

Tinea Capitis on a clinical, pathological basis is divided into two groups, the microsporum and the trichophyton infections. In this series there are two types of microsporum infections, microsporum audouini, the epidemic human form and microsporum canis, the non-epidemic animal form. These types are almost exclusively seen in children. The diagnosis is aided by Wood's ultraviolet light which causes a brilliant yellowish-green fluorescence of the infected hairs. All patients were followed with the Wood's light examination as well as with KOH and culture studies.

Eight children were treated with infection of 2 weeks to 52 weeks duration. Two were

*"Supplied as Griseofulvin-Ayerst, Ayerst Laboratories, New York, 16, N. Y."

Tinea Corporis

Organism		*Duration*
T. rubrum	14	1 - 16 years
T. mentagrophytes	2	3 months
M. canis	2	1 month
Total	18	

Negative Cultures	*Cases*
2 weeks	7
3 weeks	4
4 weeks	6
5 weeks	1
Total	18

cases of microsporum audouini and 6 were cases of microsporum canis infection. Negative cultures were obtained in 2 cases in 3 weeks, 2 cases in 4 weeks, 2 cases in 5 weeks, 1 case in 8 weeks and 1 case in 12 weeks.

All patients fluoresced under the Wood's light until culture negative except 1 case which was Wood's light negative in 4 weeks before cure. This finding agrees with other reports. Negative Wood's light fluorescence cannot be used as a criteria for cure;[9, 10] negative cultures are the most accurate criteria.

The length of hair seems to affect the length of time needed for treatment. The patients with shorter hair were negative within 5 weeks. The patients with long hair took 8 to 12 weeks for cure. It has also been reported elsewhere, that the response of tinea capitis to treatment before and after the advent of griseofulvin is delayed by long hair.[10, 11]

Tinea Barbae is a rare chronic fungus infection of the bearded area and may be caused by a trichophyton or microsporum organism. The lesions may either be superficial or deep. The two cases reported were both deep granulomatous lesions of the upper lip caused by trichophyton rubrum. The duration of the infection was 3 and 6 weeks. One case was culture negative within 3 weeks and the other case in 4 weeks. Clinical response was rapid with apparent healing of the lesions within ten

Tinea Capitis

Organism		*Duration*
M. audouini	2	1 mo. to 1 year
M. canis	6	2 weeks to 4 mos.
Total	8	

	Negative Cultures		*Cases*
Short Hair	3 wks.	1 M. can. & audou.	2
	4 wks.	1 M. can.	2
	5 wks.	1 M. can. & audou.	2
Long Hair	8 wks.	M. canis	1
	12 wks.	M. canis	1
		Total	8

days. There was no scarring. There has been no recurrence on a six months follow-up.

Tinea Barbae
(Trichophyton Granuloma)

Organism		*Duration*
T. rubrum	2	3 to 6 weeks

Negative Culture	*Cases*
3 weeks	1
4 weeks	1
Total	2

Tinea Pedis may vary from simple maceration and erythema in the toe webs to an acute, oozing, erythematous, incapacitating dermatitis. This group of 21 patients had moderately severe or severe infections involving areas of the foot as well as the toe webs. Trichophyton rubrum was the causative organism in 15 cases, trichophyton mentagrophytes in 5 cases and epidermophyton floccosum in one case. The infections had been present from 1 to 3 years.

Seven were culture negative in the 4 to 6 weeks, 8 in 6 to 8 weeks, 2 in the 10th week, 1 in the 18th week and 1 in the 24th week. One has been on treatment for 44 weeks and is still positive in the toe webs. Therapy had to be discontinued in one because of urticaria.

The clinical response was erratic and not easy to evaluate as flare-ups tended to occur while under treatment. However, most patients had clinical improvement within 2 weeks.

Tinea Unguium, infection of the nails, is most frequently caused by various trichophytons or candida albicans. Fourteen cases have been treated with trichophyton rubrum of 1 to 30 years duration. Ten of these had been infected for 10 years or longer. All had toe nail involvement and 2 also had finger nail involvement. Nail infections present a difficult prob-

Tinea Pedis

Organism		*Duration*
T. rubrum	15	1 - 30 years
T. mentagrophytes	5	1 - 30 years
Ep. floccosum	1	2 years
Total	21	

Culture Negative	*Cases*
4 - 6 weeks	7
6 - 8 weeks	8
10 weeks	2
18 weeks	1
24 weeks	1

Culture Positive (wks. of treatment)	
44 weeks	1
Discontinued therapy	1
Total	21

lem as it is necessary to wait for the nail to grow sufficiently for the infection to be carried beyond the free edge. Fingernails require 4 to 6 months to grow out and toenails require 6 to 12 months or longer.

In this series, the 2 patients with fingernail infections were clear in 5 and 7 months. In 12 patients with toe nail infections, 1 was clear in 5 months and 2 in 8 months. In one of these cases the entire nail was not involved. All others are still culture positive and have been under treatment for 8 to 12 months. Eight of these have been on therapy for 9 or more months. They are all showing definite improvement and growth of new uninfected nails at the base. (Fig. 1, 2)

Tinea Unguium

Organism		*Duration*
T. rubrum	14	1 to 30 years

Fingers		*Toes*	
Negative		*Negative*	
Cultures	*Cases*	*Cultures*	*Cases*
5 months	1	5 months	1
7 months	1	8 months	2
		Positive	
		Cultures	*Cases*
		8 months	2
		10 to 12 months	7

Laboratory Studies were done on 28 of the 38 patients. Urinalysis, cephalin flocculation test and blood urea nitrogen levels showed no abnormal findings. Complete blood counts showed no abnormal findings in 24 patients. The other 4 developed leukopenia from 3,600 to 4,000 WBC cu/mm. with a normal differential. These patients had been on therapy for three months or longer.

Adverse Reactions: No side effects were noticed by 27 patients. Three developed headaches during the first week of therapy. Four developed symptoms of mild gastric discomfort and 2 developed nausea. All of these symptoms subsided without discontinuing the drug.

Two patients developed urticaria. One case cleared while still on the drug. The other patient discontinued the drug and cleared in 48 hours. However, dosage was repeated three

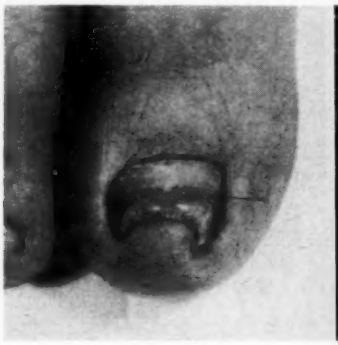


Figure 1

Onychomycosis — T. rubrum type — treated with griseofulvin for 5 months showing sharp line of demarcation of new uninfected nail from old discolored infected nail.

Figure 2

Onychomycosis — T. rubrum type — treated with griseofulvin for 9 months showing normal regrowth of nail with slight discoloration of distal edge, still culture positive.

weeks later and urticaria again developed. Therapy was discontinued.

Two patients developed an acute monilial infection proven by culture at the site of the original infection. These responded to local treatment after the drug was discontinued.

Three patients were known to be sensitive to penicillin. Two showed no adverse reaction. One case developed urticaria.

Comments and Summary

Griseofulvin, an oral fungal antibiotic, was given to 38 patients with culture proven superficial fungus infections. One gram per day seems to be adequate in most cases for cure.

Griseofulvin seems to be of low-toxicity for man. However, because of possible leukopenia, periodic blood counts should be done.

Negative cultures are the most reliable criteria for cure.

Tinea Corporis responds rapidly to oral griseofulvin. Especially when lesions are extensive it is a practical and excellent form of therapy. A few small lesions are probably treated more simply and as adequately with only local treatment.

Tinea Capitis, previously very resistant to treatment, is a major indication for the use of griseofulvin as this drug is the simplest and most rapid form of therapy which has ever been available.

Tinea Barbae, of the deep granulomatous type, is a rare lesion which will heal spontaneously in 6 to 8 weeks but it responds more rapidly to griseofulvin therapy.

Tinea Pedis responds erratically to griseofulvin therapy. Response here is not so dramatic or rapid as in tinea corporis and tinea capitis. Longer periods of therapy are necessary in some instances. Further study will be necessary for the evaluation of this drug in the treatment of tinea pedis.

Tinea Unguium, caused by trichophyton rubrum, has rarely been cured before the availability of griseofulvin. With this drug a normal regrowth of the nail may be obtained. The long term therapy is an impractical aspect. However, results are excellent if continued until negative cultures are obtained.

REFERENCES

1. Oxford, A. E., Raistrick, H., and Simonart, P.: Studies in the biochemistry of micro-organisms: LX. Griseofulvin, $C_{17}H_{17}O_6C1$, a metabolic product of Penicillium griseofulvum Dierckx. Biochem. J. 33:240, 1939.
2. Gentles, J. C.: Experimental ringworm in guinea pigs: oral treatment with griseofulvin. Nature 182:476, 1958.
3. Riehl, G.: Griseofulvin: an orally active antibiotic. Presented at a meeting of the Austrian Dermatological Society, Vienna, Nov. 27, 1958.
4. Williams, D. I., Marten, R. H., and Sarkany, I.: Oral treatment of ringworm with griseofulvin. Lancet 2:1212, 1958.
5. Blank, H., and Roth, F. J., Jr.: The treatment of dermatomycoses with orally administered griseofulvin. A. M. A. Arch. Dermat. 79:259, 1959.
6. Brian, P. W., Curtis, P. J., and Hemming, H. G.: Biological assay, production and isolation of "curling factor." Trans Brit. Mycol. Soc. 29:173, 1946.
7. Grove, J. F., and McGowan, J. C.: Identity of griseofulvin and "curling factor." Nature 160:574, 1947.
8. Gentles, J. C., Barnes, M. J., and Fantes, K. H.: Presence of griseofulvin in hair of guinea pigs after oral administration. Nature 183:256, 1959.
9. Robinson, H. M., Jr., Robinson, R. C. V., Bereston, E. S., Manchey, L. L., and Bell, F. K.: Griseofulvin, clinical and experimental studies. A. M. A. Arch. Dermat. 81:66, 1960.
10. Kirk, J., and Ajello, L.: Use of griseofulvin in the therapy of tinea capitis in children. A. M. A. Arch. Dermat. 80:259, 1959.
11. McCuistion, C. H., Jr., Lawlis, M. G., and Gonzalez, B. B.: Toxicological studies and effectiveness of griseofulvin in dermatomycosis. J. A. M. A. 171:2174, 1959.

ON THE INTERPRETATION OF RENAL FUNCTION TESTS IN RENAL DISEASE

CHEVES McC. SMYTHE, M. D.

Associate Professor and John and Mary R. Markle Scholar in Medicine,

Department of Medicine, Medical College of South Carolina.

The author emphasizes the value of routine kidney function tests, and discusses some of the particular conditions in which certain tests are most important. He refers particularly to postural proteinuria, effects of exercise, and the value of the phenolsulfonthalein test.

Relatively simple renal function tests will allow remarkably accurate inferences about the exact status of renal function. A fixed specific gravity indicates decreased glomerular filtration rate in glomerular renal disease, but in such diseases as a polycystic kidney and pyelonephritis, the prognostic import of a fixed specific gravity is not as grave. Heavy proteinuria is characteristic of glomerular renal disease. The degree of proteinuria, however, does not reflect the functional status of the kidney. A 15-minute PSP excretion of over 25% is not found in patients who have grossly diminished renal function. Careful study of the casts to be found in the sediment will allow one to differentiate glomerulonephritis and pyelonephritis in many instances. The use of the Gram stain for urinary bacteria will allow identification of pyelonephritis the commonest of all renal diseases, in many instances.

The study of kidney disease begins with examination of the urine. This statement has been attributed to Bright. Careful clinical study can allow one to predict often with great accuracy what the histological picture of a diseased kidney will show. In this clinical paper, conclusions to be drawn from tests in common use in hospital laboratories are considered. Specifically, the urine specific gravity, urinary albumin levels, study of the urinary sediment, the PSP test, and blood chemistries will be discussed. These tests allow accurate estimation of the functional status of the kidney.

Glomerular filtration rate is the important parameter of human renal function. The first step in the formation of urine is glomerular filtration. However, the kidney does no work in this process and the energy necessary to drive the filtrate across the glomerular membrane is provided by the heart. The glomerulus may leak protein and cells when diseased, but the only primary physiologic defect of glomerular disease is reduction of the volume of filtrate. Therefore, glomerular renal disease follows more predictable and stereotyped patterns than does tubular disease.

The renal tubule, on the other hand, alters the composition of the filtrate by either the addition or subtraction, or both, of many substances until the urine in its final composition emerges from the collecting ducts. Tubular renal disease is therefore very pleomorphic in its clinical manifestations, and its course may be varied. On this very simplified picture of renal function rests the approach to the meaning of the laboratory tests to be outlined.

Specific Gravity

A normal or a high urinary specific gravity usually indicates that a patient has good renal function, whereas a fixed specific gravity means poor renal function. In glomerular renal diseases, fixed specific gravity (isosthenuria) is equated with severe reduction of filtration rate. There are some exceptions to this statement to be noted, however. In early glomerulonephritis when there is extensive glomerular damage and very little in the way of tubular disease, one may see a patient who is azotemic and sometimes even acidotic who has a urinary specific gravity of 1.018 or above. This means that there has been little distortion of the tubular structure in the renal pyramids where

Supported by a grant from the Saul Alexander Foundation.

the final level of specific gravity is determined. Also, in renal failure in which heart failure is developing, there is a further reduction of glomerular filtration rate, and there will be a sudden rise in a formerly fixed specific gravity. Here the glomerular filtration volume has been reduced to a point where the remaining tubules are presented with a small load of filtrate and can process a urine of high specific gravity. Therefore, the clinical aphorism that a high blood urea nitrogen coupled with a high specific gravity in a patient with heart failure, means that one need not worry about the status of the kidney, is not entirely true.

Much more frequent and important is the situation in which there is isosthenuria or a fixed specific gravity of 1.010 in a patient who is getting along fairly well. In pyelonephritis, hydronephrosis, polycystic renal disease, and some of the congenital tubular lesions in which the pathology is in the renal pyramid where specific gravity is determined, isosthenuria does not have the same pathophysiologic significance as in a patient with glomerulonephritis. Individuals with these diseases have large volumes of filtrate presented to a tubule which does not properly process it. Therefore, the combination of a small amount of urinary albumin, no or not much urea nitrogen retention in the blood, and polyuria with a fixed specific gravity should lead one to suspect a renal tubular defect. When this combination is found in clinical medicine, careful study of these patients will reveal characteristically that hydronephrosis, polycystic renal disease, pyelonephritis, or some unusual congenital tubular defect such as renal tubular acidosis or one of its many variants, one of the hypercalcemic syndromes, an abnormality of amino acid excretion, etc. are to be found. Thus, a clinician can be guided by careful inspection of "routine" tests when to look for some of these rarities in clinical medicine, the diagnosis of which is such a rewarding experience.

Proteinuria

Albumin in the urine can come from many sources. It can originate anatomically at any place from the glomerulus to exudate at the urinary meatus. However, in large quantities, albumin originates only in the glomerulus. If one may take the hypothetical example of an individual with an hematocrit reading of 50% and a serum protein of 7 Gm/100 ml. who is putting out bloody urine with an hematocrit of 2%, and this is very, very bloody urine, such a urine will contain only 28 mg. of protein/100 ml. of urine. Thus, if one does a test for albumin in such a urine after it has been spun down, he will get only a weak reaction. Whereas, an individual with a glomerular lesion such as acute glomerulonephritis with such a grossly bloody urine will have a 4+ reaction for protein on a spun specimen.

On the contrary, in chronic pyelonephritis heavy albuminuria is a relative rarity and isosthenuria with minimal albuminuria tends to suggest a tubular lesion. One is faced with the situation quite often in which there is grossly infected urine which contains a great deal of albumin in the supernatant after the pus has been centrifuged out. Here it is safe to postulate that a kidney devitalized by some other renal disease has had an infection superimposed upon the basic process. This is most often seen in intercapillary glomerulosclerosis or diabetic nephropathy.

The degree of proteinuria tells us nothing of the functional status of the kidney, however.[1] In primary glomerular disease the proteinuria tends to remain relatively constant. This means that as glomerular filtration rate falls with progression of the disease, the amount of protein leaked by each glomerulus increases. Whereas, in both pyelonephritis and nephrosclerosis, as the disease advances, proteinuria tends to decrease which means there is no change of glomerular permeability with a falling filtration rate. Thus, one can see patients in uremia with only a trace of albumin in the urine and patients whose function tests are all normal with a 4+ urinary protein. However, relatively slight proteinuria late in the course of renal disease steers one away from diagnoses such as glomerulosclerosis, glomerulonephritis, lupus, accelerated hypertension, etc.

Postural proteinuria and the relationship of exercise to the renal sediment are important. The usual explanation given for the increase in spill of albumin when some individuals stand erect, is distortion of the renal vein with alteration of filtration dynamics in such a way

that protein is allowed to appear in the tubular fluid. The degree of proteinuria can be very heavy. However, when these individuals lie flat, if they have true postural proteinuria, which is a rare disease, the urine should become totally albumin free. Careful follow up of large numbers of patients with postural proteinuria has revealed that a distressingly high percentage of them develop progressive renal disease if followed long enough and very often the diagnosis of postural proteinuria is in error and the patient has glomerulonephritis.

A few papers have appeared recently in which physicians connected with athletic teams have noted that after very heavy exercise, red cells, protein, and occasionally a red cell cast can appear in the urine.[2] However, in these normal athletes, the exercise has been something in the order of a 15 round professional boxing match, a mile race, or a football game. In true postural proteinuria, the amount of protein in the urine might increase with relatively mild exercise, but if a shower of red cells and particularly red cell casts appears in the urine, with some mild form of exertion such as a few sit-ups, one should suspect such an individual of having active nephritis. Thus, in the workup of the patient with postural proteinuria, careful examination of the urinary sediment in addition to simple tests of urinary albumin should be done after the individual has moved about if one is to be more certain that such an individual does not have glomerulonephritis. This is one of the many situations in medicine in which simple tests might well be implemented by renal biopsy.

Urinary Sediment

Careful study of the urinary sediment is most informative. In the first place, urine should be centrifuged. Examination of the unspun urine will pick up gross degrees of hematuria and pyuria, but when it comes to the study of casts, urine which has been properly centrifuged is a necessity. Also, it is wise to study such urine with a cover slip on the microscopic slide. In particular, the significance of the red cell cast and the white cell cast, the character of the white cells in the urinary sediment, and the Gram stain should be mentioned.[3]

The red cell cast consists of erythrocytes embedded in a protein matrix. Thus, it is diagnostic of a lesion of the glomerulus from which both protein and red cells are leaked. (Fig. 1) This occurs characteristically in inflammatory glomerular disease such as glomerulonephritis or lupus erythematosus but in many other conditions as well. These casts have a definite brownish sheen and have been compared in appearance to corn on the cob. They can be found only by looking for them carefully and their importance in the diagnosis of renal disease is great.

White cell casts are polymorphonuclear leukocytes embedded in a cast. (Fig. 1) They are often confused with cellular casts which contain renal epithelial cells. They may be somewhat more difficult to see than red cell

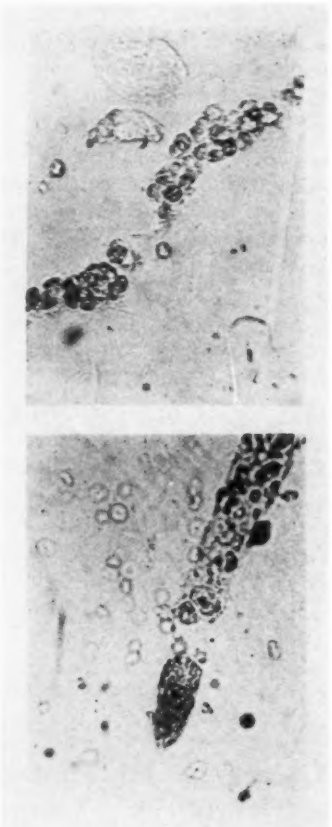


Figure 1. The lower cast is a red cell cast at its lower tip shading into a hyaline cast with cells in it. This sort of cast is seen in active glomerulonephritis. (440x)

The upper cast is a pus cell cast from a case of active pyelonephritis. (440x) After Lippman.[3]

casts. They are said to be diagnostic of an inflammatory lesion in the tubular system. This usually means pyelonephritis, and the statement has been made that a white cell cast is pathognomonic of an active renal infection. This is perhaps not completely true, but certainly such a cast should lead one to suspect pyelonephritis and to have the urine cultured.

Much has been made lately of the "glitter cell" phenomenon. When urine is vitally stained with a mixture of a safranin and gentian violet, the polymorphonuclear leukocytes will stain either dark reddish purple or will take a very light violet stain. The dark cells tend to be found in inflammatory lesions of the lower urinary tract and the light pale staining cells are said to be found in inflammatory lesions of the upper urinary tract. The pale staining cells also show Brownian motion of the granules in them. This causes the cells to glitter under the microscope, and hence, gives them their name. These cells by a number of tests have been proven to be living active polymorphonuclear leukocytes.[4] At first, they were thought to occur only in parenchymal inflammation of the kidney. Subsequent investigation has proved that the presence of large numbers of pale staining cells is suggestive, but not diagnostic, of pyelonephritis. Moreover, their absence from the sediment does not rule out pyelonephritis. Certainly, if one has a urinary sediment which contains many of these cells, he should tend to pay more attention to the possibility that there is parenchymal renal inflammation even in the presence of a source of infection in the lower urinary tract. This stain is also useful in that it allows one to differentiate easily red cells and some of the more exotic casts.

Gram Stain

This is not the place to go into the significance of quantitative urinary bacteriology.[5] However, it has been established now that in the presence of urinary tract infection due to a Gram-negative rod large numbers of bacilli are significant whereas small numbers of bacilli are not. In other words, all positive urine cultures are not positive. A gram stain of the unspun urinary sediment will detect the presence of about 100,000 bacteria/ml. in 85% of the cases. (Fig. 2) Thus, a Gram stain of the urine is helpful when a urine culture is ordered if quantitative urinary bacteriology is not available. Furthermore, approximately 40% of individuals with active pyelonephritis will have less than 8-10 white cells/HPF. Thus, in patients in whom there is a good possibility that urinary tract infection is present, e.g. diabetics, hypertensives, individuals with a cystocele, elderly patients who have been bedridden, men over the age of 65, patients with a past history of genito-urinary tract manipulation, pregnant patients with toxemia, Gram stain of the urinary sediment will disclose a startingly high incidence of active urinary tract infection in many individuals.

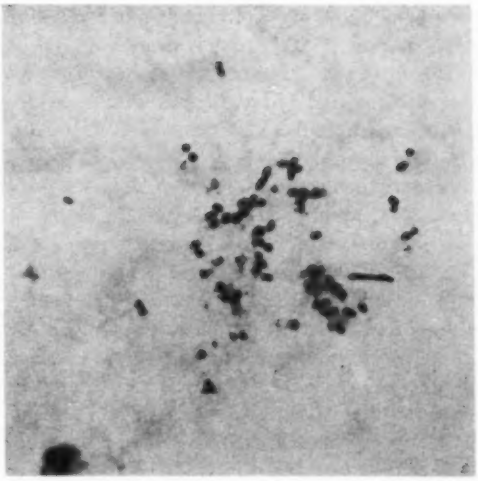


Figure 2. Methylene blue stain of an unspun urine in active pyelonephritis. Note the dense concentration of bacilli seen in this oil emersion field. This stain is simpler to do than a Gram stain and requires only flooding of the slide with the stain.

It should be noted also that methylene blue is an excellent stain for detecting bacteria in urinary sediments. Although one cannot tell the difference between Gram negative and Gram positive organisms, the stain does give one an idea of the density of bacteria present. This is a simpler procedure technically. Urine is fixed by heat on a glass slide. The slide is flooded with methylene blue for one to two minutes, dried, and read under the highest magnification available on one's microscope.

PSP Test

The PSP test has been in use for a long time, but has been falling into ill repute lately. This

test is usually very roughly done and is capable of giving more information than most of us realize. (Fig. 3) Lapides and Bobitt[6] have recently correlated PSP excretion with measurement of glomerular filtration rate. Their correlation showed that an excellent PSP excretion does not exist in individuals with very poor renal function. In other words, glomerular filtration rate is maintained in those individuals in whom PSP excretion is good. It is possible for poor PSP excretion to exist when glomerular filtration rate is adequate. Therefore, one can say that if an individual excretes a large amount of PSP in the first 15 minutes after the dye is given (over 25%), there need be no worry about his overall renal function. (Fig. 3) A poor PSP excretion should lead one to suspect the possibility of renal disease and further investigations might be in order. To express this aphorism in the simplest possible terms, if more than 25% of the PSP injected is excreted in the first 15 minutes, glomerular filtration rate can be assumed to be at least 65% of normal or better. This is a particularly valuable preoperative study because it is those individuals who have a decreased glomerular filtration rate who are apt to have postoperative difficulty with water and electrolyte balance. There is, however, only very poor correlation between two hour excretion totals and renal function.

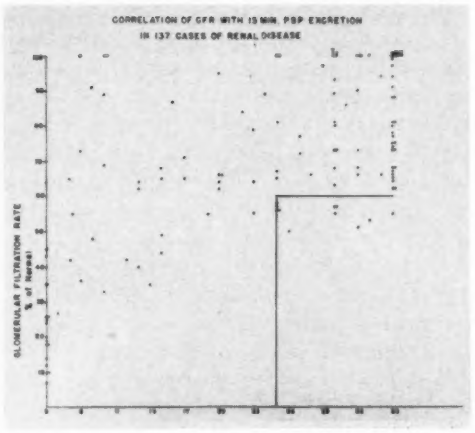


Figure 3. In all but a few cases PSP excretion of greater than 25% in 15 min. correlates with a glomerular filtration rate of over 2/3 of normal. Low PSP excretions may be seen with normal glomerular filtration rates, however.

Summary

(1) Careful application of "routine" kidney function tests allows accurate inference of the status of the kidney.

(2) A fixed urinary specific gravity in the presence of tubular renal disease does not have the prognostic impact of this finding in glomerulonephritis.

(3) Heavy proteinuria is characteristic of glomerular disease.

(4) To make a diagnosis of postural proteinuria one should examine the sediment as well as determine any change in albuminuria after exercise.

(5) The degree of proteinuria in no way reflects the functional status of the kidney.

(6) Gram stain of the urinary sediment is a most useful technique for the detection of asymptomatic bacteriuria.

(7) A 15 minute PSP excretion of over 25% indicates a glomerular filtration rate of at least 60% of normal. A lower PSP excretion does not prove that renal function is poor, but indicates the need for careful study of renal functional status.

REFERENCES

1. Lathem, W. Proteinuria in renal disease. To be published.
2. Alyea, E. P. and Parish, H. H., Jr. Renal response to exercise-urinary findings. J. A. M. A.: 167, 807, 1958.
3. Lippman, R. W. Urine and the urinary sediment. 2d ed. Springfield, Ill. C. C. Thomas, 1957.
4. Poirier, K. P. and Jackson, G. G. Characteristics of leukocytes in the urine sediment in pyelonephritis. Am. J. Med.: 23, 579, 1957.
5. Smythe, C. McC., Rivers, C. F., and Rosemond, R. M. A comparison of the incidence of bacteriuria among hypertensives and matched controls. A. M. A. Arch. Int. Med. 105: 899, 1960.
6. Lapides, J. and Bobbitt, J. M. Preoperative estimation of renal function. J. A. M. A.: 166, 866, 1958.

TEN YEARS EXPERIENCE WITH TUBERCULOSIS IN CHILDREN IN CHARLESTON COUNTY

J. R. PAUL, JR., M. D. AND
MARJORIE MENGEDOHT, M. D.

Department of Pediatrics, Medical College of South Carolina, Charleston, S. C.

Our community resources which deal with tuberculosis are listed on the first table. These are probably more than exist in an average community of comparable size in the Southeast. Two reasons for this are that we have a medical school and medical center in the city; and we have a very special doctor who, 35 years ago, took over the full-time professional operation of the Pinehaven Sanitorium. His great enthusiasm and dedication to understanding and practical solution of the problems of tuberculosis coupled with his extraordinary ability, medical and vocal, has probably more than any other factor been responsible for the development of these facilities, and actually the education in tuberculosis of most of the practicing physicians in our state and most of our local lay workers. (We refer, of course, to Dr. W. A. Smith.)

Every community has characteristics and cultural and social differences. The second table gives population figures for Charleston County and City in 1950 and 1960.

A study of our community by the Child Welfare League published in March 1959 emphasized that ours is a "divided or segmented community", in contrast to certain typical midwestern cities "where ethnic ties are less strong, and the predominant symbols of social status are the more changing, fluid symbols of a thriving middle class." This cultural characteristic no doubt has an effect on epidemiology. We cannot say what effect.

Tuberculosis is a contagious disease which is transmitted from open cases to contacts. As Dr. Hsu expresses it "tuberculosis is, for the most part in 'spots' ". Efforts at case finding must be directed to the "spots" around the contagious cases.

Since tuberculosis rarely produces overt symptoms of disease before it has produced serious pathology, it is well understood by all of us that if crippling and death due to tuberculosis are to be prevented, and if healthy children and adults are to be given public health protection, it is essential that all means be taken to find these "spots", ferret out and isolate open contagious cases, and follow-up newly infected contacts (tuberculin converters) with diligence and thoroughness.

Case finding which starts with a tuberculous adult or child is effective and essential.

Case finding by routine or periodic tuberculin test surveys provides another method of finding tuberculous "spots" in communities, and stamping out the contagion and treating other cases and converters in the constellation.

Various speculative figures may be found regarding the percentage of tuberculin positive adults in various parts of this country, and in particular races or groups. It is actually true that in Madison, Wisconsin, when I was a resident, a sick Indian child coming on our wards was considered to have tuberculosis until proved otherwise. Negative proof was rare.

Twenty years ago figures of 50 to 70 and 80% were generally taught in medical schools, and considered more or less "normal".

It is generally stated in the current literature that upwards of 70 or 80% of adults in this country now are tuberculin negative.

This marked reduction in tuberculin positivity in America testifies to the great reduction in the active open case rate due to modern methods of treatment, isolation, and case finding which have been developed and practiced throughout our land.

We know that it is not the routine practice of very many doctors in our community to do tuberculin tests on all children that they see for prophylactic care—i. e. school and camp

checks, etc. — or in differential diagnosis of ambulatory or non-hospitalized illnesses. Percentages of positives would surely be very low.

It is difficult to find authoritative recommendations regarding how frequently children should be subjected to routine case finding techniques. Sentiment for routine case finding, particularly in children, by mass x-ray or photofluorographic methods which recently were so widely used and recommended for use in schools, hospitals, and clinics and other areas has for many good reasons been largely abandoned. Tuberculin testing for screening is far more specific, less dangerous, and less expensive. We believe that it is considered to be an essential routine in pediatric services of all medical school centers to skin test all children above two or three months of age admitted for any reason. This has certainly been the practice of our pediatric service for many years. It is also considered highly desirable that all children coming into the pediatrician's offices or pediatric clinics over the country have a "T.B." skin test at frequent intervals.

Attending physicians in wards and clinics all know what constant preaching and effort is required to insure the faithful application of tests. In most pediatric wards dealing with acute disease — private and service, as well as in the referral type diagnostic centers there is a rapid turnover of patients. If tuberculin tests are not applied routinely on admission virtually upon completion of admission physicals, these vital tests will not be ready even for a 48 hour reading before the patient is discharged.

In clinics it is neither fair to the patient nor can it be tolerated by the clinic load to have all children return 2 or 3 days after initial visits merely and only for reading of tuberculin tests. We all know how unreliable the reporting of results by parents is. We cannot assume that all parents, even "intelligent" parents will bring in all children with suspicious or positive tests. We certainly cannot assume that if they do not come in the test must have been negative. The reliability of such assumptions is, of course, much higher in private practice patients. Despite these difficulties we attempt, and constantly work to carry out routine testing of all patients in our wards and clinics.

Most pediatricians agree that children who are known contacts of open cases should be skin tested every three months until they convert, or for 2 years after the contact has been broken.

Edith Lincoln implies[1] that all pre-school children should be tested every 6 months on the grounds that chemotherapy should be given for a year to all children known to have converted in the preceeding 6 months. Dr. Hsu[2] states that all school children should be tested annually.*

The Academy of Pediatrics' Committee on Infectious Diseases does not make any general recommendations regarding routine skin testing, but states that conditions differ in each locality.

The School Health Committee of the Academy, of which one of us is a member, has discussed this subject at length also without making general recommendations for all schools. Theoretical advantages of annual tests for all school children would seem to be obvious.

Our efforts to learn and depict some idea of morbidity rates of tuberculosis in children in our community broken down according to

*Dr. Hsu has referred the authors to an official statement by the Committee on Tuberculosis and Respiratory Diseases in Children of the American Trudeau Society — Amer. Rev. of Resp. Dis., 81, 446-448 (1960). An excerpt from this report is quoted as follows.

TUBERCULIN TESTING

The committee recommends that all children should be tested intradermally with a material equivalent to 5 TU of PPD-S. The first test under ordinary circumstances should be carried out at six to eight months of age; if that test is negative, the test should be applied at least once a year thereafter, unless the child is known—or suspected—to have been exposed to tuberculosis.

In the event of known or suspected exposure to an open case of tuberculosis, a tuberculin test should be administered as soon as possible. If it is negative, it should be repeated as often as every four weeks until it becomes positive or until the longest possible period—three or four months—for the development of tuberculin allergy has passed. In the event that the contact with tuberculosis continues, the child should be tested as often as every month until contact ceases or until the tuberculin test converts. It is not yet certain whether the administration of isoniazid to an infant or young child who remains in constant contact with a case of tuberculosis, but whose tuberculin skin test is negative, will prevent infection or whether the drug merely suppresses infection and postpones the development of tuberculin sensitivity until drug administration is stopped.

TABLE 1

CHARLESTON COUNTY CASE FINDING AGENCIES AND RESOURCES

I. Charleston County Health Department
   1. Chest Clinic
   2. Public Health Nurses
II. 1. Pinehaven Hospital
   2. Pinehaven Out-Patient Clinic
III. Charleston County Tuberculosis Association
   1. Education: Student nurses; Lay
   2. Demonstration Projects
   3. Fact finding
IV. Hospitals and Clinics
V. Private Practitioners

TABLE 2

CHARLESTON COUNTY POPULATION FIGURES

	Total	White	Non White
1950	165,000	96,500	68,500
1960	210,000	121,000	89,000
	Charleston City Limits		
1950	70,174	39,287	30,887
1960	60,000	22,000	38,000

three age groups are shown on the following tables.

The table (Table 3) on children in Pinehaven merely shows that practically no pediatric cases are treated in that Sanitorium. We understand that they now have one 4 year old colored child whom we treated for progressive primary pulmonary tuberculosis and discharged to the Pinehaven Chemo Clinic, but who did not get treatment and when sought out was found to be deteriorating in his home.

The next Table (Table 4) shows admissions to ward services under the Pediatric Department (private as well as charity) from Charleston County in the past 10 years according to age groups — the preponderance of cases in the younger age group (1 - 5 years) in each year reflects the expected increased incidence due to well known increased susceptibility to activity of tuberculosis during the period of rapid growth in infancy and early childhood, contrasted with the much greater resistance to the disease in the school age years. We would undoubtedly find a sharp rise in morbidity during adolescent years if our study had included the years 16 to 20.

Table 5 shows a break down of these active cases according to age, race, and sex.

Table 6 shows children on the Charleston County Case Registry during these same years. This includes all active diagnosed cases from all sources in the county whether hospitalized or not.

The final Table (Table 7) represents three spot check studies by routine tuberculin testing done in the last 2 years (tests were done using 5 T. U. or intermediate strength PPD).

The bottom lines show the number of positive reactions in our out-patient department during the month of April 1960. All children reporting to the sick clinic for any reason that month were tested, and all had their tests read. The readings required a great increase in the work of the clinic, emergency room and visiting nurses during that month. Of the 409 children tested, eleven, or 2.6% are tuberculin positive. Follow-up of these particular eleven

TABLE 3

TB PATIENTS PINEHAVEN HOSPITAL
(children 1 - 15 years)

Age - years	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959
1 - 5	0	0	0	0	1	0	0	0	0	0
6 - 10	0	0	0	0	0	0	0	1	3	0
11 - 15	0	0	2	3	1	1	1	0	2	5
TOTAL	0	0	2	3	2	1	1	1	5	5

TABLE 4

TB PATIENTS ROPER HOSPITAL
(children 1 - 15 years)
1950-60

Age - years	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959
1 - 5	0	5	8	3	8	1	1	3	1	1
6 - 10	1	0	1	1	2	0	0	1	0	0
11 - 15	0	0	1	1	2	0	1	0	3	3
TOTAL	1	5	10	5	12	1	2	4	4	4

children happened not to show any active cases.

The upper two studies shown in the Table are surveys of virtually all of the pupils in a large new Negro high school in the City, (Burke), and a smaller white public high school in the city.

We felt that since these schools serve the teen agers of their respective races from all over the city (practically every ward), and since tuberculin sensitivity developed in childhood very rarely is lost by high school age, the per cent of reactors in these two schools would give a fairly accurate picture of the percentage of children, white and colored, in our city who have come into effective contact with open tuberculosis during the period of their childhood.

While a one month sampling of our clinic activity may not be sufficient for strong reliability it would seem that the preponderance of the contacts that cause tuberculin sensitization, occur after the pre-school period. Therefore, the high school survey gives a fairly accurate picture of total childhood exposure. Actually, the relatively few contacts that sensitize pre-school children account for the vast preponderance of the morbidity in children.

Incidentally, all of the positive reactors in the two high school Groups were followed up. Only one active case was found in the Negro high school, and none in the white school.

TABLE 5

PERCENT TUBERCULOSIS IN CHILDREN
(10 YEAR STUDY)
ROPER HOSPITAL

AGE		
	1 - 5	64.5%
	6 - 10	12.5%
	11 - 15	23.0%
RACE		
	colored	95.8%
	white	4.2%
SEX		
	male	54.2%
	female	45.8%

TABLE 6

SUMMARY CHARLESTON COUNTY TB REGISTRY
1950-60
CHILDREN

Age - years	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959
1 - 5	6	14	21	10	20	13	16	18	10	20
6 - 10	1	2	2	3	14	4	12	5	4	7
11 - 15	0	1	4	5	5	2	9	1	5	6
TOTAL	7	17	27	18	39	19	37	24	19	33

TABLE 7

TUBERCULIN SENSITIVITY TESTS

Total Tested	Number of Reactors	Percent Reactors
Burke High School	(14 to 18 years)	
1256	139	11%
Charleston High School	(14 to 18 years)	
344	13	4%
MCH Pediatric Clinic	(1 to 15 years) (Mostly 1-8 years)	
409	11	2.6%

REFERENCES

1. Lincoln, Edith M., M. D.: Treatment of Tuberculosis in Childhood. Advances in Pediatrics, Vol. X, 1958. Year Book Publishers, Inc., p. 103.
2. Hsu, Katherine, M. D.: Tuberculosis in Children and Finding Tuberculosis Through Examination of Contacts — A Guide for Public Health Nurses. Revised 1960 — Brochure published by The Texas Tuberculosis Association, 2406 Manor Road, Austin, Texas. p. 8.

MARFAN'S SYNDROME

JOHN O. FULENWIDER, JR., M. D.
Pageland, South Carolina

Recently I have had in my office six members of a family of seven, four of whom are normal individuals. The father and two sons have ectopia lentis and severe myopia with other stigmata of the Marfan syndrome.

Apparently there are no cardio-vascular manifestations evident as yet in this group. These usually take the form of defective media of the aorta and the pulmonary arteries, producing dissecting aneurysms, dilation or both.

I. The first generation was composed of several normal children about whom nothing is known since they became separated from their two deaf and dumb brothers, one of whom married a normal individual, but no record of their family is available. The other deaf brother married a deaf girl and their descendants are shown above.

II. The second generation produced three normal children, all married.

III. The third generation produced two children with ectopic lentis, one deaf child.

IV. The fourth generation has four children with ectopia lentis, two of whom have received treatment for this condition. The other

Figure 1

Shows father, two affected sons and two normal sons. Not shown in picture is spouse who is normal except for adenoma of the thyroid, and normal daughter, married, with no children. The father and older sons all have lens margins visible through undilated pupils; the father, 44, and the son, 12, are being treated by a local optometrist for severe myopia. All three demonstrate dolichostenomelia. The father has longer arm-to-arm reach than height and greater symphysis-to-sole than symphysis-to-vertex measurements; he has left scrotal hernia. All three have sparseness of subcutaneous fat.

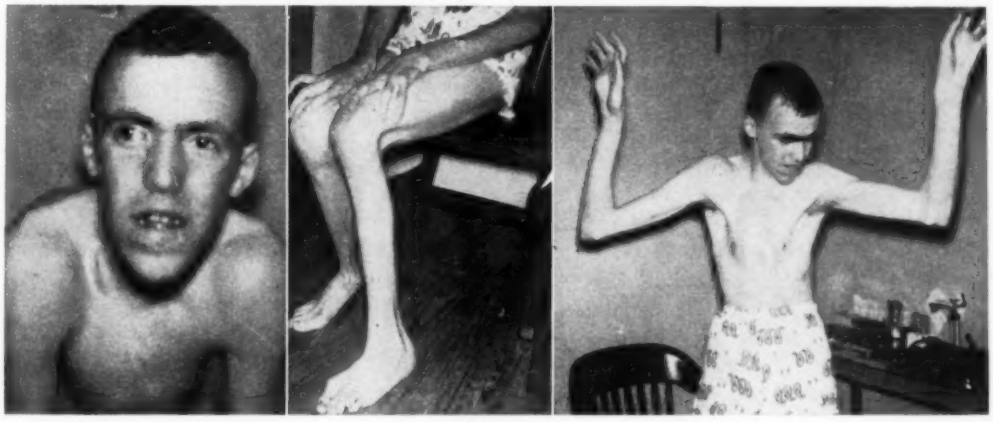


Figure 2

Son, 17, has ectopia lentis, (Fig. 3) arachnodactyly and pectus carinatum (Fig. 4.)

Geneology of this family below, as near as could be obtained:

There is no knowledge of any pathologic conditions at the beginning of the family represented above.

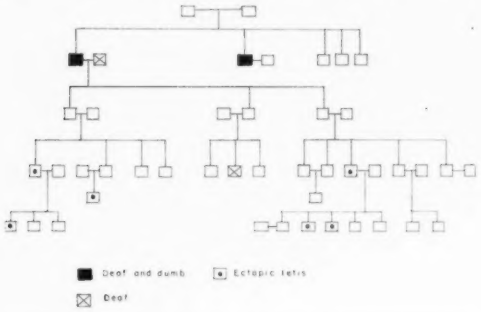


Figure 5

X-ray film shows lateral view of chest. Incidentally, this boy has had attempted correction of the deformity of his feet by orthopedic surgery.

two children with ectopia lentis are pictured in this article.

Conclusion

Marfan first described this apparently heritable syndrome of defective connective tissue in 1896. I think it is of interest to all of us in that, in the treatment of the different entities as they present themselves, it is well to be aware of the total syndrome. I believe these syndromes account for many unexplained deaths in infancy and the fourth and fifth decades of life.

REFERENCE

Heritable Diseases of Connective Tissue, 2nd edition, by E. A. McKusick, M. D., C. V. Mosby Co.: St. Louis, 1960.

THE PROMINENT AURICLE

CARTER P. MAGUIRE, M. D.

From the departments of surgery, St. Francis Xavier Hospital and Roper Hospital, Charleston, S. C.

The protruding ear in a youngster serves as a severe psychological deterrent to normal associations and development. The operation for the correction of protruding ears, commonly known as lop ear procedure, is outlined and two representative cases are presented.

The prominent auricle, commonly referred to as "lop ears", is a frequent abnormality in children and probably the most common deformity involving the external ear. Contrary to general opinion, there is no tissue deficiency but rather a failure of formation of the antihelical fold. There is usually an associated prominence of the conchal cartilage, which, coupled with the absence of the antihelical fold produces the wide, prominent ear which stands out from the skull at almost a right angle. (Fig. 1, Fig. 2)

This deformity is seen in both sexes alike and its etiology remains obscure. Since one commonly sees the defect present in mother-daughter or father-son combinations, it appears to be inherited as a recessive characteristic. Plastic surgical reconstruction of such an ear requires not only the creation of an antihelical fold but also the resection of a sufficient quantity of conchal cartilage to enable the auricle to lie in its normal relationship to the skull without tension.

Although many methods have been described, probably the most popular procedure is as originally described by Dr. John Staige Davis and Dr. Edward Kitlowski. This "Davis-Kit" procedure limits all skin incisions to the posterior auricular surface. The line of the

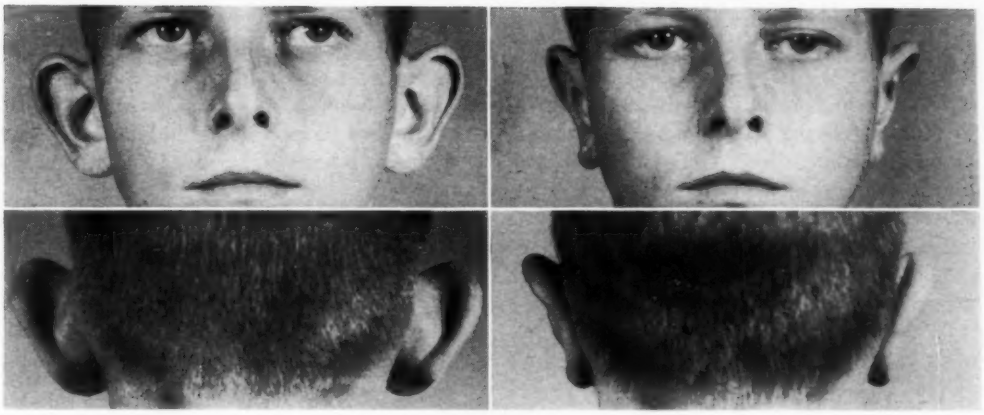


FIGURE 1

A and B—12 yr. old boy with marked protrusion of both ears. Note the absence of the antihelix and the prominent concha.
C and D—Postoperative results.

proposed antihelix is tattooed through and through the ear leaving a tract of dye (brilliant green, methylene blue) in the cartilagenous layer for later use. An incision is made on the posterior skin of the ear just posterior to the line of tattoo marks. The anterior flap is lifted and the cartilage is incised along the entire line of tattoo marks. Care must be taken to incise completely through the cartilage but the anterior auricular skin must not be injured. The posterior skin flap is elevated from the concha and a suitable segment of the conchal cartilage is excised. The antihelix is now sutured side-to-side to the concha using 000 plain catgut. Frequently, it is necessary to remove additional strips from the concha until the desired result is obtained. The reconstructed ear is now sutured to the skull after removal of a suitable segment of postauricular skin. Skin

FIGURE 2

A and B—9 yr. old girl with protruding ears due to absence of the antihelix and prominence of the concha, particularly on the right side. The condition did not bother the patient until "pony-tail" age.
C and D—Postoperative results.

closure is accomplished using 00000 black silk without drainage.

After-care of the patient is important. The initial dressing of cotton balls molded to fit the contour of the reconstructed ear, cannot be duplicated; so it should be left intact until the fifth postoperative day at which time the sutures are removed. After this time, no dressing is required save a stocking-top cap which should be worn over the ears at night, for a period of two weeks.

Although many other birth deformities are more extensive and mutilating, none produce a more psychologic withdrawal than "lop ears". Most male children admit that they've had to fight every boy in the county, at one time or another, because of teasing. The deformity can be more easily hidden in girls but sooner or later it seems they all must have a "pony-tail". The best age for operation is at five to six years so that the deformity can be corrected before the child begins school.

Summary

Two cases of prominent auricles, one male and one female, are presented with a brief description of the operative technique.

Book Reviews

PRINCIPLES OF SURGICAL PRACTICE by E. Marcus, M. D., Ph. D. and Leo M. Zimmerman, M. D. Blakiston, New York, 1960. Price $12.50.

The authors have set out to condense the vast field of modern surgical knowledge into a volume of practical size. They have done this very well. While aimed at the student or trainee, this book will be useful to the doctor in practice as well. A full summary of principles at the end of each chapter is a fine addition for a teaching text. The illustrations are well chosen and the index is adequate.

Fred Kredel, M. D.

CURRENT SURGICAL MANAGEMENT II by John H. Mulholland, M. D., Edwin H. Ellison, M. D. and Stanley R. Friesen, M. D. 348 pages. W. B. Saunders Company, Philadelphia, 1960. Price $8.00.

This second volume with contributions by 50 authorities presents contrasting views on the treatment of a number of common surgical problems. Most of the chapters are related to abdominal surgery with individual views on the best methods to handle complicated situations. This type of frank opinion sums up "what to do" in a manner highly useful to the practicing surgeon. Each chapter contains references to recent literature and the editors have added brief but cogent remarks. We know that doctors disagree and here they spell out in detail their reasons. This is a highly instructive volume at the modest price of $8.00.

Fred Kredel, M. D.

OCCUPATIONAL DISEASES AND INDUSTRIAL MEDICINE. Rutherford T. Johnstone, M. D. and Seward E. Miller, M. D. W. B. Saunders Co., Philadelphia, 1960. Price $12.00.

The increasing emphasis on occupational disease and industrial medicine, from the standpoint of prevention of accidents and illness and the reduction of absenteeism, as well as the relationship of industrial exposures to disease, has demanded of a larger and larger number of physicians extensive knowledge in these continually broadening areas. This publication by two well qualified authorities in the field of industrial medicine and public health has been stimulated by the obviously increasing importance of this field and the continuing development of new chemicals and new processes in industry. A book on a similar subject has been published previously by one of the authors.

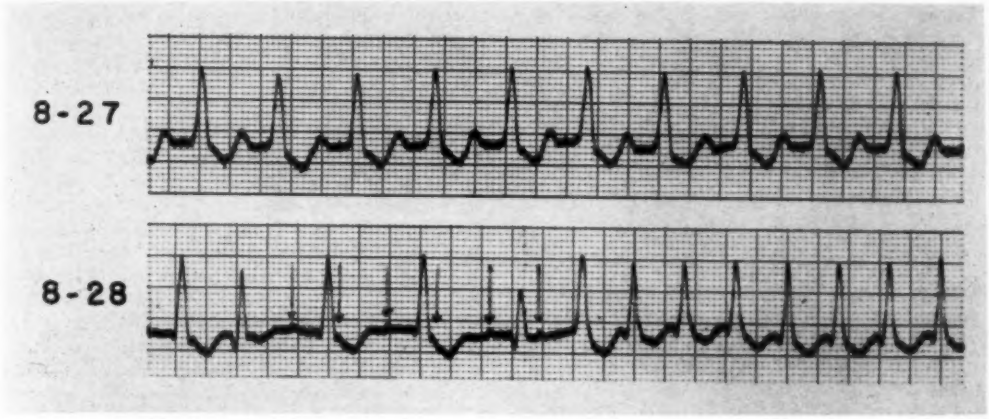
The book is divided into two parts. Part I is a discussion of the practice of industrial medicine, its scope, the place of the physician, his responsibilities, and his associates the nurse, the hygienist, and others. Workmen's compensation and physician's relationship in this field are discussed. The problem of the handicapped worker and the importance of efforts at rehabilitation of the individual in this category are emphasized. Part II is devoted to the discussion of the occupational diseases and the industrial agents responsible for them. The newer chemicals, radio-active materials, rocket propellants, and other currently important agents and processes in industry as well as in agriculture to which workers are exposed are discussed from the standpoint of the industrial physician, with the presentation of the clinical picture of the illnesses, the prevention, the treatment, and the disability caused by such agents. This book is a valuable addition for the library of the industrial physician as well as for any physician whose practice includes individuals employed in present day industry.

Kelly McKee, M. D.

(Book Reviews Continued on Page 92)

MEDICAL COLLEGE CLINICS

THE MEDICAL COLLEGE OF SOUTH CAROLINA



ELECTROCARDIOGRAM OF THE MONTH

Digitalis Toxicity

DALE GROOM, M. D.
Department of Medicine

Case Record—A sixty-eight year old man with a long history of asthma and of coronary occlusion several years previously followed by angina, was admitted to the hospital in advanced congestive heart failure. So far as could be determined he had taken a total of 2.4 grams of digitalis during the preceding four days. Only when he became severely ill with nausea and vomiting was he brought to the hospital.

Treatment consisted mainly of administration of diuretics, aminophyllin and potassium. Inadvertently a small amount of additional digitalis was given. He lost ten pounds of edema fluid within 48 hours, showed some clinical improvement as regards his congestive failure but died suddenly on the fourth hospital day. Serum values of sodium, potassium and transaminase were within the normal ranges throughout.

An ECG on admission disclosed paroxysmal atrial tachycardia with a prolonged P-R interval and a ventricular response rate of 160 which dropped to 80 following carotid sinus pressure. Additionally there were frequent ventricular ectopic beats, loss of R waves in some precordial leads consistent with a previous anterior wall infarction and intermittent runs of ventricular tachycardia. The strips of lead 2 illustrated below were recorded on the last two days of life.

Electrocardiogram—The rhythm on Aug. 27 appears to be a regular sinus one at a rate of 120 with prolongation of the P-R interval to 0.24 (first degree AV block). The QRS is widened to 0.10, consistent with the quinidine effect or perhaps a peri-infarction block. Configuration of the T waves is characteristic of that caused by digitalis, and they merge with the following P waves.

Quite different P waves are evident the following day. They are smaller and their rate is 175, indicative of a paroxysmal atrial tachycardia. For a while the ventricles respond to only every other P wave (2:1 block) with a minor change in ventricular conduction producing small Q waves and further widening of the QRS. Interspersed are occasional ectopic beats of ventricular origin and finally a long run of ventricular tachycardia, its rate just a little slower than the P.A.T. (about 165). Though they look somewhat similar, these QRS complexes are widened to 0.12.

Discussion—This case illustrates several of the electrocardiographic features of digitalis toxicity. To begin with, the patient had frequent ventricular ectopic beats (multifocal in origin) in several tracings, delayed AV conduction, then parosyxmal atrial tachycardia with block and ultimately a ventricular tachycardia. It is likely that the terminal event was the final stage of myocardial irritability, that of ventricular fibrillation. The usual S-T and T wave changes of digitalis effect were of course evident throughout in the complete ECG. The progression through the stages of ventricular ectopic beats, ventricular tachycardia and finally ventricular fibrillation is virtually classical for digitalis toxicity, and the P.A.T., the AV block and other signs lend additional support to that diagnosis.

As in acute myocardial infarction or general anesthesia, ventricular ectopic beats have a special significance when they arise as a result of digitalis administration. Commonly, toxic levels both delay AV conduction and enhance myocardial irritability. Whether the latter is accomplished by its action in driving the potassium ion out of the cell or not, there is abundant evidence that depletion of intracellular potassium greatly increases the cell's susceptibility to digitalis toxicity so that administration of potassium (particularly in patients whose K stores have been depleted by diuretic therapy) is of prime importance in treatment.

Similarly, paroxysmal atrial tachycardia, which is regarded as a relatively benign arrhythmia of young subjects with presumably normal hearts, frequently is an ominous sign when it appears for the first time in an elderly individual. Either coronary disease or digitalis can cause it. In the latter event there is commonly an associated AV block and it signifies a near lethal level of digitalis toxicity.

Worthy of re-emphasis occasionally is the fact that these electrical manifestations of digitalis intoxication can appear before the subjective ones. Some patients simply do not experience the progression of anorexia, then nausea, and vomiting and yellow vision prior to reaching a dangerous stage of arrythmia, so variable is the individual response to digitalis. Furthermore it is accepted practice in many circles to push digitalis cautiously to the point of toxicity in order to determine what is the patient's true maintenance dosage. And there is some justification for this in cases where it is essential that a full therapeutic effect be achieved. Moreover, many patients taking the drug over long periods of time inevitably encounter toxic levels for one reason or another, and something can be said for familiarizing them with the warning symptoms as a safeguard. In such a situation, the ECG may disclose the therapeutic endpoint before the awaited symptoms appear.

Arguments continue to be heard (usually with very tenuous evidence) that certain digitalis preparations have wider "safety margins" than others, with the implication that they are capable of attaining greater therapeutic effects before toxicity is reached. Of far greater importance in therapy, however, is early recognition and treatment of digitalis toxicity—and some appreciation of the relative rates of excretion of the different preparations.

The incidence of digitalis intoxication is probably much higher than is generally supposed. There is the elderly patient with impairment of recent memory who forgets that he has taken his medication and so takes it again. There is the less enlightened patient who reasons that if one tablet a day is good, two or three will be better. And there is the prescription collector who shops from doctor to doctor ending up with two or more prescriptions for preparations of the same drug. The very schedule of digitalization with multiple doses for the first few days is conducive to confusion unless carefully explained and set forth on the label. Prolonged usage of diuretics and low sodium diets can precipitate toxicity on the same dosage of digitalis the patient may have tolerated well for months. And on the physician's side is the ever present hazard of administering a digitalizing dose in the emergency room to the patient who unknowingly is already on the drug — (it is remarkable how little some patients seem to know of the identity of medications they are taking). Though by no means infallible, the ECG will usually show some indications of digitalis effect if the patient is or recently has been under treatment with it. A safe rule is to always take an electrocardiogram before administering digitalis.

THE CHANGING IMAGES OF DOCTORS TODAY

Woodrow Wirsig
Editor, *Printers' Ink*, New York

How often lately have each of you heard someone say "Oh, you are a wonderful doctor". Often? I hope so, for every person likes to be needed. But I'm sorry to say that no matter how often an individual may praise you, society in general is changing its attitudes about doctors.

What we might call "an increasingly bad image" about doctors is emerging. This image can, if unchanged, interfere with doctor's work, with the continuing progress in medicine which doctors have come to expect automatically from our social order, and with his future as a scientist.

Now, what do I mean by "image"? We in communications are using "image" to mean *something that people think is so — whether it really is or not.*

I wanted to find out what the changing images of doctors are today. So I made another survey. This is the third survey I've done on this subject in the last two years. My purpose each time was for an address to a major medical group.

My first survey was among editors of important magazines published nationally in America. Editors are sensitive to what their readers are thinking, and want. Besides, they feel a responsibility to help educate their readers. I wanted to know what they were thinking about doctors today.

My second survey was to find out how the doctor and his wife are regarded in their communities.

This third survey was made a month ago. I talked with two groups of people:

1—A group of educated people, those who had at least an A.B. degree from college. Among them were teachers, business men, ministers, editors and writers, and doctors themselves.

This is an abstract of a talk presented at the Southern Medical Association-Merrell Medical Economic Symposium, St. Louis, November 3, 1960.

2—A group of non-professional people, intelligent but generally uneducated. They included milk delivery men, gardeners, maids, lathe workers, mechanics, service station attendants.

This survey, like the others, was a small one. I could not go to any great expense for it. But as a kind of pilot study, made carefully to elicit genuine attitudes and not what the people thought I wanted to hear, it could serve as an indication of a problem doctors would be wise to explore.

What, now, IS the image that seems to exist in people's mind?

It's interesting, to me anyway, to see how an image changes and grows. Two years ago, the editors I talked with said their readers admired doctors as scientists. But they complained that doctors were getting more impersonal. Doctors, they felt, seemed more concerned about money than explaining an illness. These readers had a growing fear that illness would eat up all their savings.

A year ago, I found that the people in the particular community I studied admired doctors for their skill and ability. But they not only felt that doctors didn't talk to them enough, but they also were developing *strong resentment* toward doctors. They had a right to know what ailed them, they said, and doctors brushed them off. Their resentment spilled over toward the doctors' wives.

Today, among the educated group I surveyed, I discover that they regard doctors as better scientists than ever before. They also feel that doctors seem less prejudiced, less rigid in their thinking and approaches to illness. Doctors, they say, seem more receptive to new ideas and new techniques than ever before. Also, they feel that the doctor today regards himself as less omniscient, even more humble, in the face of widening frontiers of knowledge.

On the other hand, they think he is much less of the family physician than ever before. They think they understand *why* doctors are this way. They believe that a doctor's growing concern for more knowledge, more work because of more patients, and worry over rising costs and prices on every hand — while his own prices are difficult to raise — tend to make him what he is today. Being more remote, the doctor is less communicative. In treating his patients impersonally, he tends to increase their fears about themselves, increases their anxieties and heightens their resentment toward the doctor in personal relationships.

There's no question, of course, but that a better educated public has more curiosity. As cities, industry, living and medicine get more complex, doctors can not always come up with a simple explanation. Pressures of time, more patients, distance, keeping up his education and work in the hospitals, all keep today's doctor from talking things over with patients as much as he wants to.

Among the people with a high school education, or less, I discovered that they now regard their doctors with outright hostility. A doctor is someone to avoid going to, if at all possible. When they do go, they regard him as a high-priced mechanic who should fix their problem with an injection. They tend to look for something, or someone, to solve their fears of high medical costs.

This introduces a new element I found this year: More than half of the people in both groups said that they wanted the Government to set up some kind of a program so they wouldn't have to worry about medical bills and ill health. It would all be taken care of for them.

This, then, is a troubled image. Clearly the people's temper seems demanding. They want something done. And this is a challenge to medicine today — a challenge to act.

All over the country, evidence is piling up that some kind of planning is necessary. Yet in most of the medical journals I read I keep seeing articles that criticize change . . . they bewail the growing hostilities toward doctors. They do not face up to the problem expressed by the President's own Commission on the Health Needs of the Nation, which said "The genius for organization, so characteristic of American life in general, is conspicuous in health services by its absence. The increased complexity of health service . . . makes it increasingly apparent that some order must be achieved".

So today, the images in the minds of different segments of society present doctors with a great challenge. Their whole way of life is on the verge of being changed. Unless *doctors themselves* find a way of meeting this challenge, someone else will do it for them — probably not nearly as well as the doctors could do it themselves.

What I propose is in line with people's emerging insistence on a national purpose . . . on solving domestic and international problems without resorting to force . . . in line with a new dynamics that seems to parade American education, communications and marketing here and abroad.

Health care is a matter of right — and doctors must take the initiative in forming whatever is necessary to provide it. For if they don't someone else will.

The reasons why I urge you so vigorously to do these things on your own behalf is that I feel so strongly that I know how valuable you really are to society. You are in a great new era, a golden era of knowledge. Never has medicine been more intelligent, more skilled.

I urge all of you to apply these same skills and resourcefulness to solving some of the social and economic problems surrounding medicine today.

President's Pages

THE ANNUAL MEETING

This month I want to call your attention to our Annual Meeting which is going to be held in the Francis Marion Hotel, in Charleston, on April 25, 26 and 27, 1961.

Council will meet Tuesday morning at 9:00 A. M. It will also meet each day during the meeting.

The House of Delegates will convene Tuesday afternoon, promptly at 2:30. There will be a special order at 4:30 P. M., Tuesday, at which time the House of Delegates will sit as the Corporation of Blue Shield. *This is the time for the Delegates to present any resolutions or discuss any problems that have come up in their counties concerning Blue Shield.*

The Reference Committees will meet at 5:30 P. M. The following Reference Committees will be appointed and pertinent resolutions referred to the respective groups:

1. Reports of Council and Officers.
2. Legislation and Public Relations.
3. Public and Industrial Health.
4. Amendments to the Constitution and By-Laws.
5. Insurance, Blue Cross, and Blue Shield.
6. Miscellaneous Business.

Please take note of these committees so that you might appear before them and discuss any resolutions you might be interested in.

The House of Delegates will re-convene Friday at 9:00 A. M. and continue until Noon.

A great deal of planning has gone into this meeting by our Scientific Program Committee. Dr. R. Cathcart Smith, of Conway, Chairman, and Drs. Dessie Gilland and Walter Mead — other members of the committee, have come up with what I consider to be one of the most unique programs ever put on by the South Carolina Medical Association.

The Scientific Program will start Wednesday afternoon, promptly at 2:20 o'clock, with the presentation of papers from doctors in South Carolina. According to the present schedule we will have one out of state surgical speaker, also, on that afternoon. Following these papers and as a conclusion to the afternoon session will be a panel on "Jaundice".

The big day will be Thursday. The Medical College of the University of North Carolina has agreed to take over the program for the entire day. Just what they will talk about we do not know at the present time. However, we do know that they will present their top-notch men and emphasize particularly the fields in which they have done research and special work. The Thursday session will also be concluded with interesting panel discussions, the subjects of which are yet to be announced and which probably will be divided into 2 sections so those interested in medical problems might not be bored by a surgical presentation and vice versa.

Also, during both days, interesting moving pictures on medical subjects will be run continuously on a time schedule, with subjects announced, so that we will be able to take full advantage of the films which might be of particular interest to us.

The Ladies Auxiliary plans a full schedule for their members who are in attendance, and have made special preparations and plans for entertaining the wives of the visiting speakers.

As has been the custom for many years, the Alumni Association of the Medical College of South Carolina is in charge of the social functions of the meeting. This year, in addition to the Annual Alumni Lunch Wednesday at noon, the dance and entertainment on Wednesday night and the Banquet on Thursday night at which time the Alumni Association honors the President of the South Carolina Medical Association, it will also sponsor a breakfast Thursday morning. Please plan to attend this breakfast as the guests of the Alumni Association, so that we might start the day off with a full house. After breakfast the report of the Memorial Com-

mittee will be heard and, also the Presidential address. We hope that this innovation will assure a sizable attendance for the early papers on Thursday morning, which have been so sparsely attended in the past. More often than not, the Association has been very embarrassed to have so few members present for the opening papers Thursday morning. This rudeness has not gone unnoticed by our guests.

Out of the plans for this meeting has come a recommendation from the Scientific Committee that the By-Laws of our Association be amended so that the Scientific Committee become a permanent committee, rather than a regular committee appointed each year. The idea would be that one member of the committee would go off each year, and a new member appointed. In this way there would be a continuity of thought from year to year. The advantage of such a plan is obvious when we realize the many problems confronting the committee: To avoid duplication — to insure securing a particular speaker who may not be available this year, but could be obtained next year, etc. — so that some variation in scientific material might be planned from year to year.

We hope that the Delegates to the Convention will be thinking about this and it might be favorably received. Particularly is this important if the Guest Medical College Program works out well and we wish it to be continued.

Plan now to attend. The Francis Marion is the Headquarters Hotel.

Joseph P. Cain, Jr., M. D.

CHANGE IN LAW BEING SOUGHT

A change in South Carolina law requiring that state aid to county health departments be made on the basis of population is being sought by the State Board of Health.

State funds to county health departments are distributed at present on a population basis according to the 1950 census, in addition to a flat $11,500 grant.

Beginning this year, however, funds would have to to be distributed according to the 1960 census, which would mean that 21 counties would get less money because they lost residents during the last decade.

Dr. G. S. T. Peeples, State Health Officer, said the Board of Health is asking for the following: that the present appropriation to all counties remain the same and be used as a minimal base rate. If this is done, money can be appropriated to counties in which it is needed and will do the most good and not be spread out over all the counties in amounts so small that needy counties would not benefit.

Dr. Peeples said three provisos in current law are in question. The proposed substitute provisos would ask that no county receive less than it is getting now. The proposal, he said, also would ask that "federal funds made available to the Board shall be distributed among the counties on a basis so that no county shall receive more federal funds until each county has received an amount equal to those amounts made available for the fiscal year 1960-61."

The Board has asked for an appropriation of $2,833,-700 for the next fiscal year, $108,697 more than the current period.

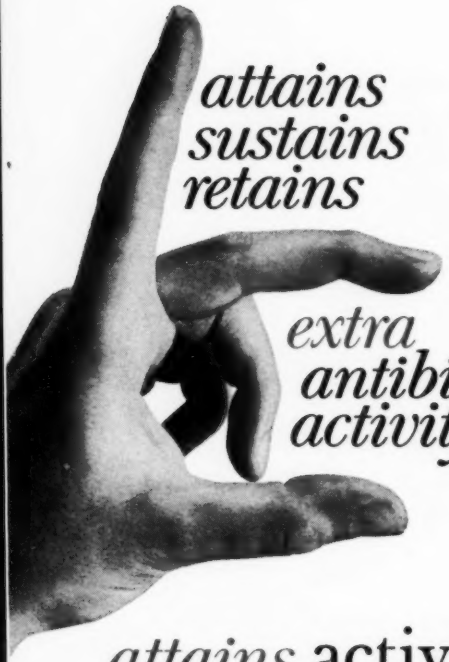
PRIVATE MEDICINE

Though modest in seeking personal publicity, South Carolina physicians are right to raise their voices in behalf of their profession. The private practice of medicine like other aspects of private enterprise, requires constant defense.

The South Carolina Medical Association has offered to provide speakers without cost to civic and cultural groups in the Charleston area. The speakers will be drawn from the Charleston County Medical Society. They will attempt to explain the doctor-patient relationship, and other phases of private medicine.

We welcome this method of reaching the public ear. We invite public attention to what the doctors say. They represent a highly selected and well educated branch of society. They are good citizens as well as scientists. As a class they are among the leaders of any community. We would not want them to be swallowed up in the welfare state.

—*News ad Courier*
(Charleston) Dec. 31, 1960



attains
sustains
retains

extra
antibiotic
activity

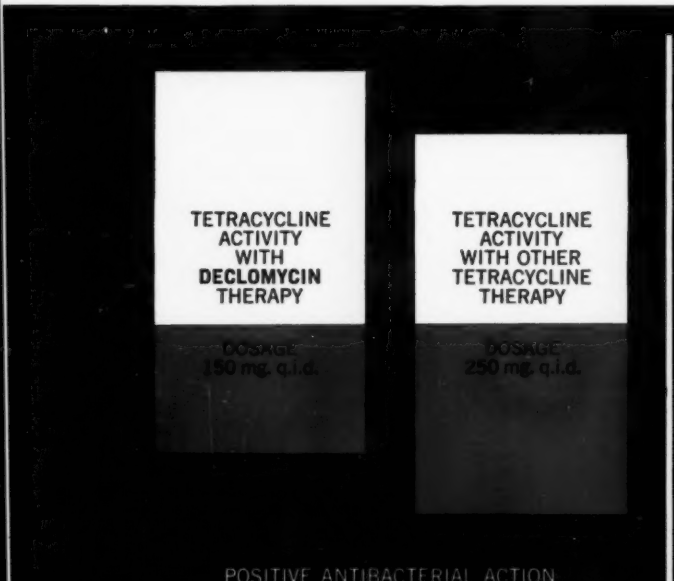
DECL

attains activity levels promptly

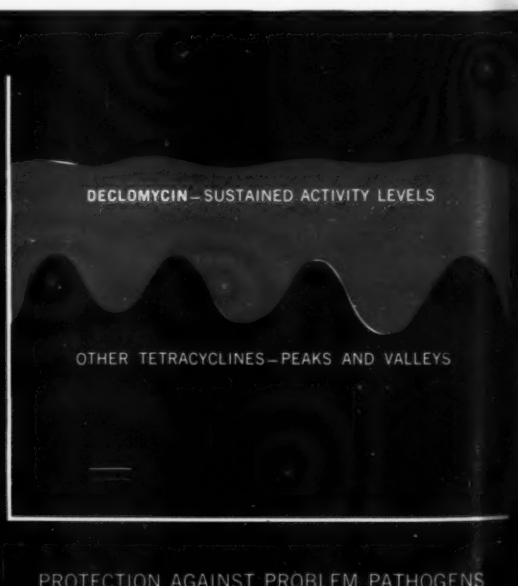
DECLOMYCIN Demethylchlortetracycline attains—usually within two hours—blood levels more than adequate to suppress susceptible pathogens—on daily dosages substantially lower than those required to elicit antibiotic activity of comparable intensity with other tetracyclines. The average, effective, adult daily dose of other tetracyclines is 1 Gm. With DECLOMYCIN, it is only 600 mg.

sustains activity levels evenly

DECLOMYCIN Demethylchlortetracycline sustains, through the entire therapeutic course, the high activity levels needed to control the primary infection and to check secondary infection at the original—or at another—site. This combined action is usually sustained without the pronounced hour-to-hour, dose-to-dose, peak-and-valley fluctuations which characterize other tetracyclines.


TETRACYCLINE ACTIVITY WITH DECLOMYCIN THERAPY
DOSAGE 150 mg. q.i.d.
TETRACYCLINE ACTIVITY WITH OTHER TETRACYCLINE THERAPY
DOSAGE 250 mg. q.i.d.

POSITIVE ANTIBACTERIAL ACTION



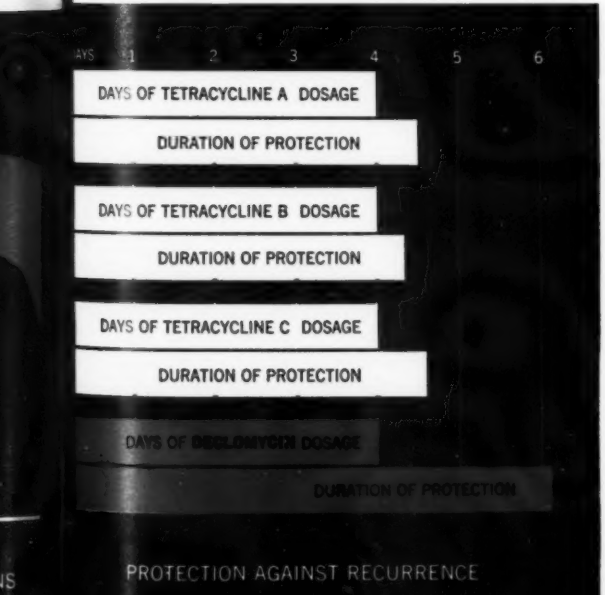
PROTECTION AGAINST PROBLEM PATHOGENS

CLOMYCIN®

DEMETHYLCHLORTETRACYCLINE LEDERLE

vet ins activity levels 24-48 hrs.

DECLOMYCIN Demethylchlortetracycline retains activity levels up to 48 hours after the last dose is given. At least a full, extra day of positive action may thus be confidently expected. The average, daily adult dosage for the average infection—1 capsule q.i.d.—is the same as with other tetracyclines...but **total** dosage is lower and duration of action is longer.



CAPSULES, 150 mg., bottles of 16 and 100. **Dosage:** Average infections—1 capsule four times daily. Severe infections—Initial dose of 2 capsules, then 1 capsule every six hours.

PEDIATRIC DROPS, 60 mg./cc. in 10 cc. bottle with calibrated, plastic dropper. **Dosage:** 1 to 2 drops (3 to 6 mg.) per pound body weight per day—divided into 4 doses.

SYRUP, 75 mg./5 cc. teaspoonful (cherry-flavored), bottles of 2 and 16 fl. oz. **Dosage:** 3 to 6 mg. per pound body weight per day—divided into 4 doses.

PRECAUTIONS—As with other antibiotics, DECLOMYCIN may occasionally give rise to glossitis, stomatitis, proctitis, nausea, diarrhea, vaginitis or dermatitis. A photodynamic reaction to sunlight has been observed in a few patients on DECLOMYCIN. Although reversible by discontinuing therapy, patients should avoid exposure to intense sunlight. If adverse reaction or idiosyncrasy occurs, discontinue medication.

Overgrowth of nonsusceptible organisms is a possibility with DECLOMYCIN, as with other antibiotics. The patient should be kept under constant observation.

LEDERLE LABORATORIES
A Division of
AMERICAN CYANAMID COMPANY
Pearl River, New York

Editorials

DR. CRAWFORD UPHOLDS THE FAMILY PHYSICIAN

In his address as chairman of the section on general practice of the American Medical Association, Dr. R. L. Crawford of Lancaster, a recent president of the Association of this state, paints a picture of the continued importance of the family physician, who can meet 85% of the needs of his patients. Dr. Crawford emphasizes the close personal relationship which is necessary for proper relations between doctor and patient and views the family physician as something much warmer and more human than the medical statistician or high level professor in his ivory tower. The general practitioner, he says, should and does engage in a good many activities which are not strictly medical, he becomes an important member of his community in ways not related directly to his practice and he acts as wholesome leaven in the body politic. He does not view with the prevailing alarm the decline in the number of these essential practitioners and points out that there are more than 25,000 members of the Academy of General Practice. At the same time he shares the concern that has been expressed by many that there is a great need for a larger number of young men to enter the practice of medicine in general, and general practice in particular.

Dr. Crawford believes rightly that the general practitioner can do far more to promote good public relations than can the casual specialist who sees the patient only occasionally, and more than the remote consultant who has little lasting personal contact with the vast body of patients.

Dr. Crawford also believes that the establishment of a Board of General Practice would add an incentive to the choice of this general specialty. He thinks that a training period of two to three years after graduation would be adequate preparation, providing the training was arranged to cover those portions of practice which would be essential to the performance of the best sort of work as family physicians.

MADISON AVENUE GOES TO MISSISSIPPI

The October number of the *Mississippi State Medical Journal* reports—without comment—a new stunt in "public relations" as follows:

Exclusive 'Medical Club' Organized in Coahoma County

Clarksdale — Most popular status symbol among Coahoma county small fry is "Tonsils Out Club," membership limited to tonsilectomy patients under 12 years old. Upon hospital discharge, youngsters receive special gold and black certificate signed by attending physician and administrator . . . in witness of bravery" and lapel button.

This editor is inclined to think that it would be more appropriate to give similar awards for wisdom and agility to those youngsters who have managed to escape this overworked operation.

AUTOGENOUS VACCINE THERAPY IN STAPHLOCOCCIC INFECTION

An article with the above title offers some encouragement to those who have struggled in the past with the eradication of staphlococcic infections in the form of furuncles. Autogenous vaccines have been used liberally, but the rather enormous number of doses usually prescribed and the relative expense have not made them popular with either patient or physician. Use of stock staphlococcus toxoid has also enjoyed a certain amount of popularity, but here again the process of administration was slow and not always as satisfactory as might be hoped.

This paper gives a report on 60 cases of staphlococcus infection with coagulase positive *Staphlococcus aureus*. Of the 60 cases treated 44 had excellent response, 11 patients showed improvement and there were only 5 instances of failure. This is a far better box

score than can be chalked up for the older approaches. The technique of preparation of the vaccine is thought to be the explanation of its efficacy.

One of the most pleasing features of the use of this special type of vaccine is the reduction of the number of injections. Ten injections are considered to represent an average course of treatment. Occasionally it was found necessary to add a few extra doses or repeat the course but this was an unusual situation. No systemic reactions were observed in any case. This method of preparation of vaccine and the schedule of treatment would certainly seem to warrant extensive trial of what appears to be a great improvement over older methods.
J.A.M.A. 174:35 September 3, 1960.

THE CASE OF IRON-DEXTRAN (IMFERON)

Until recently this preparation has been in wide use and has been productive of very satisfying results in the correction of simple anemia. There have been no ill effects reported, and the process of elevating the hemoglobin and red blood count has been so much more rapid than could be achieved by oral administration of iron that the solution had become a very popular one with the practitioners, particularly with pediatricians. A short time ago the appearance of a report on experiments in rats and mice in which the repeated injection of massive doses of Imferon into the same site resulted in the development of local sarcomas in a high percentage of the animals was responsible not only for putting a damper on the enthusiasm of those who were using the drug but also in withdrawal of the preparation from the market. Whether these remotely applicable experiments could be interpreted in terms of human response is quite a debatable question.

The producer of the preparation obviously must have suffered tremendous financial loss, and the pediatrician felt intense disappointment that a substance which to him had seemed to be an extremely valuable one had been officially denounced by the Food and Drug Administration. Most of the pediatricians felt that the rapidity of response was the most valuable and desirable feature in the use of this drug. No one has yet reported any real ill effect in humans which could be attributed to it.

Editorial comment in the *American Journal of Diseases of Children* deals with the use of Imferon and is rather critical of the way in which it has been used generally by the profession. It may be true that it has been given indiscriminately but so have many other drugs of much more dangerous potentiality. Certainly it should not be given without proper indication, but in the right place it has been a very valuable tool. Those physicians who have poured pills and iron solutions into patients and waited hopefully for a reasonably quick rise in hemoglobin were particularly pleased when they found that in many instances a rapid benefit could be achieved in patients who might otherwise have had to postpone anesthesia, surgery, and other urgent processes.

It is to be hoped that there will be an official review of the questions of the theoretical dangers associated with the use of Imferon and that the judgment of the authorities will be that it may be returned to its very useful function in the treatment of simple anemias.

INFANT MORTALITY IN SOUTH CAROLINA THE CHANGING PICTURE

Not long ago the South Carolina State Board of Health issued a summary of the figures having to do with infant mortality in the state in the year 1958. Comparison with figures of twenty years ago shows a very heartening improvement in many respects and certain rather definite changes in the elements which go to make up the total mortality.

Over the twenty year period there has been a very considerable drop in the total infant mortality rate, that is in the number of deaths under the age of one year per thousand live births. The figure has fallen from 80 to the far more respectable level of 24.3, which represents 1,092 fewer deaths in 1958 than in 1938. This figure no doubt reflects increased activities in health department matters, and improved general knowledge and techniques

in medicine. For instance, one factor may have been the advent of the antibiotic drugs and their widespread application.

Another factor may be seen in the radical change in the use of hospital facilities, as indicated by the tremendous increase in the number of deaths which occurred in hospitals and the tremendous reduction in the number which occurred in homes. Obviously the sickest infants were taken to the hospitals and the widespread use of hospitals for obstetrical services would also account for a very large part of this variation. Later figures show more than nine times as many deaths in hospitals and a reduction of deaths in homes to figure somewhat more than one-fourth of the total recorded in 1938.

In the older reports of mortality there was a somewhat appallingly high percentage of infant deaths recorded at which no medical attendant was present. Twenty years ago more than one third of the deaths were classified in this way. Now less than one-tenth of the total lack medical care. Even so, this is a very large figure, and points probably to lack of available medical care and a lack of understanding of the urgent need by certain less knowlegeable classes of parents, and also to the lack of facilities for care for a variety of other diseases incidental to the early period of life.

In the earlier report of 1938 there were 889 deaths attributed to prenatal and natal circumstances. This figure has actually risen to 1212, and has assumed the position of practically sixty percent of the total number of infant deaths as the causes more active in previous years have been controlled and deaths have declined in that category. For instance, deaths due to gastrointestinal diseases have declined from 425 to 95, from communicable diseases in infants from 354 to 67, from prematurity from 619 to 394. This last is still an excessively high figure. Accidental deaths in infancy have risen somewhat. Improvement in keeping records and probably in medical care and knowledge is represented by a drop in that unsatisfactory category of "ill defined" deaths from 961 to 175.

The lessons of this comparison seem to point largely to the necessity for intense concentration on prenatal and natal factors, and thus seem to place a certain burden on the obstetrical attendant rather than on the pediatrician, or general practitioner, whose skills can not mend what has been irretrievably damaged. This does not imply that obstetrical skill is lacking, but points to the area in which improvement may be expected.

Included in this thought was the fact that immaturity in some degree was associated with 37% of the total number of deaths reported.

The Division of Maternal and Child Health of the State Board of Health is to be congratulated on these ably presented reports and for its deep concern for the problems which they point out. These same problems concern every practitioner who handles infants in any way, and offer a challenge which he has met well in the past and will meet even better in the future. Studies of perinatal mortality now current in many hospitals of the state represent a move in the right direction.

SOLVING THE PROBLEM OF THE CRIPPLED

Action undertaken by the professions, religious, labor, industry, business, government and other groups supporting programs for the rehabilitation of the physically handicapped points up crippling as one of our most important health problems of the day.

Medical science is providing cures for once fatal diseases which now leave in their wake many persons who must live with handicapping conditions. The Easter Seal Society tells us that 8½ million Americans suffer from one type of crippling or another and that one family in every five finds it necessary to fight back against a physical disability of one of its members.

Treatment, research, prevention and education are among the major weapons for attacking this vital problem. We can think of no other organization that is using all of these resources more effectively than the National Society for Crippled Children and Adults and its Easter Seal affiliates in all parts of the nation.

At present, a quarter million crippled children and handicapped adults are under treatment or are receiving rehabilitation services

of many kinds ranging from nursery school through the various therapeutic techniques to training for and placement in appropriate employment.

When the 1961 Easter Seal campaign opens March 2, it will mark the 40th consecutive year of service to the crippled by the National Society. Its Easter Seal affiliates operate and co-sponsor a network of more than 1,400 centers and programs offering direct services to crippled children and adults regardless of race, creed, or cause of crippling condition.

Continuing through Easter Sunday, April 2, the 1961 appeal will seek the financial support to carry on this fight against crippling. Contributions to continue this important work is one of the best ways we know to get the problem of the crippled solved, to assure treatment, education, employment and acceptance of our handicapped friends, neighbors and relatives.

PUBLIC RELATIONS — SPEAKERS BUREAU

The Public Relations Committee of the South Carolina Medical Association was instrumental in presenting recently, with the very considerable help of the local members, a number of television programs which seemed to be well received. They dealt with subjects which were of common interest to the profession and to the public, and the comments have been quite favorable and encouraging.

At the end of the past year it was decided to discontinue the television shows for the present, except perhaps to use very short spot appearances of physicians on their local television stations' news programs, and to concentrate efforts on setting up a state-wide speakers bureau. The purpose of this bureau is to furnish speakers on subjects similar to those used on the television programs for any civic organization, or, in fact, wherever an audience can be found. Response from the county societies over the state was not uniform, and only some twenty counties offered to participate and designated local chairmen for that purpose. It is hoped that all of the other counties will in time join this effort.

It appeared that requests were not coming in spontaneously in sufficient number, and that perhaps the organizations which might avail themselves of this bureau were not aware of it, and in order to stimulate activity the larger civic clubs, luncheon clubs, garden clubs, etc., have been notified that speakers may be had from their local medical societies. Conceivably this could be quite a large job in some areas, and it is hoped that the members of the societies when requested to participate will give their cooperation to the local chairman.

This effort has received some editorial recognition in some of the daily newspapers of the state, and it appears to meet with a very favorable reception from those who are sympathetic with the objectives of Medicine.

It is hoped that the new officers of the county societies, who have perhaps not been aware too intimately of this project, will undertake to appoint local chairmen, and to notify Dr. J. I. Waring, 82 Rutledge Ave., Charleston, S. C., of these appointments.

RED CROSS: GOOD THINGS HAPPEN

The appeal of the Red Cross is universal. It provides the means to put into action that ageless impulse in the human heart that leads people to help one another—to give, to teach, to guide. Through its efforts to relieve mankind's suffering from disasters, accidents, and disease, the Red Cross contributes to the welfare of every American family. Touching the lives of more Americans than any other nongovernmental agency, the Red Cross provides:

- Life-giving blood for the ill and injured
- Assistance to servicemen, veterans, and their families
- Help for the disaster stricken
- Training in nursing, first aid, and water safety
- Opportunity for young people to learn good citizenship through service to others

March 1961 will be proclaimed Red Cross Month by the President of the United States. About 3,000 of the 3,700 Red Cross chapters will be campaigning for funds to provide Red Cross services. The remaining chapters will either be campaigning for part of their funds or, in the event they have already met their needs through federated campaigns, be conducting educational campaigns to acquaint their communities with ARC activities.

This past year the Red Cross was on the job

the world over—wherever people were in need or in trouble. It provided food, clothing, medicines, and building material to victims in the devastated Chilean earthquake area. It sent doctors, nurses, and physical therapists to Morocco to help care for nearly 10,000 victims of a crippling paralysis. Also in Morocco, it rushed aid to refugees from Agadir, destroyed by earthquakes, fires, and a tidal wave.

Here at home, the Red Cross carried on a relief program for the thousands who fell victim to capricious Hurricane Donna. It gave them food, shelter, and medical aid and helped repair and rebuild their homes. Hundreds of thousands were trained in the vital skills of home nursing, first aid, and water safety. And for the ill and injured, it provided the life-giving blood urgently needed for recovery.

Men and women in military service, veterans, and their families also benefited from the multi-services of the Red Cross. Wherever U. S. men and women in uniform are stationed, the Red Cross is there to assist with personal and family problems and scores of other troubles that can arise when a person is separated from home and loved ones. The Red Cross it at work in Veterans Administration offices, assisting those now out of uniform obtain the benefits provided by the federal government. It also is on duty at veterans hospitals, as well as other hospitals throughout the nation.

The Red Cross knows neither geographical nor ideological barriers. It pierces the Bamboo Curtain to give food and health supplies to Americans held in China. It surmounted the frontiers of East Germany to arrange the release of American servicemen.

The Red Cross depends entirely upon voluntary contributions to maintain its many services. Every county in the nation is served by a Red Cross chapter, manned and operated by the people of the community. The work of the Red Cross is done by two million devoted volunteers—men, women, and young people who can attest to the fact that "good things happen when *you* help."

SELECTIVE SERVICE MIGHT CONSIDER SPECIAL DOCTOR CALL

General Lewis B. Hershey, Director of National Selective Service issued a bulletin on January 13, 1961 to all State Selective Service Headquarters of interest to Doctors of this State as follows:—

"Not enough physicians are making applications for commissions to meet service requirements. If the present trend continues, a special call will be placed with the Selective Service system for the delivery of physicians.

Local Boards are requested to accomplish, no later than March 1, 1961, the physical examination of all physicians born after December 31st, 1931, who are in Class I-A or Class I-A-O and have not been examined, or who are classified in Class IV-F on the basis of an armed forces physical examination accomplished prior to their becoming physicians.

Local Boards are also requested to accomplish, no later than March 1, 1961, the physical examination of all physicians who are in Class II-A and are serving internships. . . . ."

This refers to Doctors who are liable under the regular draft. In case of a call, non-fathers will be called first, then fathers under 26, the over 26, fathers or non-fathers. The oldest will be called first.

This call, if made, will be under the regular draft act. However Doctors called under this act will be given an opportunity to secure a Commission.

This call will not be made if enough Doctors volunteer to meet the needs of the armed services.

This information is furnished so that those Doctors called up for physical examinations will know why they are being called.

Frank C. Owens, M. D.
S. C. Chairman Medical Advisory Committee
to Selective Service.

MEDICAL COLLEGE CHANCELLOR HONORED

Dr. Kenneth M. Lynch, long-time president and now chancellor of the Medical College of South Carolina, was honored in Columbia, S. C. on January 4 at an "appreciation dinner" attended by more than 200 of South Carolina's medical, civil and political leaders. Governor Ernest F. Hollings, Dr. H. Rawling Pratt-Thomas, dean of the College's School of Medicine, and Dr. Thomas A. Pitts of Columbia, chairman of the Medical College's board of trustees paid tribute to Dr. Lynch's part in the expansion of the Medical College program.

Governor Hollings called Dr. Lynch's work "monumental" and noted that since 1944 about 20 million dollars have been invested by the Medical College on its campus. "It is expected," said the Governor, "that by the end of the next decade we will have a medical center with a face value of close to $50 million with an intangible value too precious to be estimated." Governor Hollings also remarked about Dr. Lynch's part in working to obtain the Veterans Hospital proposed for Charleston. "It can now and should be revealed," the governor said, "that Dr. Lynch has been in negotiation with the Veterans Administration for the past several years to pave the way for this accomplishment."

Dr. Pitts traced Dr. Lynch's career from 1913, when he arrived at the Medical College as the youngest man ever to head a department of pathology in a medical school, until his retirement last year.

Dr. Lynch has taught more than half of the practicing physicians now active in South Carolina, Dr. Pitts said and added that more than 2,000 doctors "have marched into his classrooms."

Dr. Pratt-Thomas spoke of Dr. Lynch's achievements in the field of medicine and told of his non-medical interests as a sportsman and man of the out-of-doors.

In addition to the vocal tributes, Dr. Lynch also received a book containing letters of commendation from persons throughout the nation as well as the state, and an old English Sheffield bowl bearing this inscription:

"To Kenneth Merrill Lynch, M. D., chancellor, Medical College of South Carolina, in appreciation of his services to medicine and to humanity. Presented by his friends, Jan. 4, 1961."

KENNETH MERRILL LYNCH, M. D.

Dr. Pratt-Thomas's address follows. (The Governor's speech will appear in the Alumni Bulletin of the Medical College.)

It is easy to talk about one's chief behind his back. It is not unduly difficult to talk to him face to face, particularly about someone else. It is apt to be a trifle disconcerting to talk about him to his face. I have been closely associated with Dr. Kenneth M. Lynch for more than twenty years in a professional capacity having to do with teaching, research, and diagnostic services. Seldom has the make-up of an institution become so closely identified with the personality of an individual. Kenneth M. Lynch and the Medical College of South Carolina over the last two decades have become virtually synonymous. He was Mr. Medical College. This came about due to the devotion of Dr. Lynch. He lived and breathed Medical College. This was true whether he was presiding in the "throne-room" of the Medical College Hospital, in his pink clapboard work-away shanty in Summerville, at his beach cottage, at national meetings, in the rotunda of the capital in Colum-

bia, or in the halls of the National Administration. It is true that *Odocoilens virginianus*, *Meleagris gallopavo* and *Camellia japonica* have furnished diversion and relaxation, but I am almost certain that his wild turkey gobblers know a thing or two about the political scene in South Carolina and probably by association with their keeper became more nervous than usual during the budget hearings and meetings of the general assembly. I am sure that on a deer stand all the conversation did not revolve about the number of mythical points on a buck's head but was equally divided between the deer's anatomy and the points in favor of this or that at the Medical College.

For those of us who have been privileged to know him during a period of time which now approaches a quarter of a century, this devotion and single-mindedness of interest and purpose has been an outstanding attribute. No less impressive to his colleagues has been his vision. He has been blessed with vision sufficiently synchronized to the times that dreams and plans have become reality. A man with vision who is too far ahead of his time is termed a "crack-pot". Backward glances are easily achieved by anyone and as the eye specialist says are always twenty-twenty. Forward glances may be viewed as either idiotic stares by one's contemporaries or as sensible projections of the necessities demanded by the future. Dr. Lynch achieved his accomplishments by possessing vision tempered by reality. In common parlance, he never projected himself into space but he definitely became air-borne.

Closely allied to effective vision in terms of results is the matter of timing. Kenneth M. Lynch might well have been a Swiss watchmaker in this realm of endeavor. A camera whose shutter sticks and doesn't open at the proper moment will never record that all important moment of decisive action. A gun that is trigger-happy and fires too soon will not bring down game any more than one whose trigger has to be yanked to make it go off. How often have I heard Dr. Lynch remark, "now don't let's rock the boat." It was equally understood although never expressed that what he really meant was "don't rock the boat until the seas are favorable and then if necessary turn the damn craft over." When the opportunity knocked, the door was flung open wide if the home was adequately provendered and its residents properly prepared to see guests. If not, she was carefully notified of a return engagement under more propitious circumstances.

A man of vision in touch with the present and the future and fully cognizant of the proper time for action may still be thwarted if he lacks the knowhow and people-relationship necessary for success. Practitioners of medicine are constantly talking about physician-patient relationship. Dr. Lynch was constantly practicing people-relationship. He may share the view held universally by others that he is a highly competent pathologist. I would like to inform him at this time that he is also an extremely competent psychologist. It has been a standing joke among members of the Medical College staff returning from conferences with Dr. Lynch to hear them state "No, I didn't get what I wanted but he sure did make me feel good about it." I have seen the parents of flunked or failing medical students appear at Dr. Lynch's office mentally and physically equipped with everything short of actual firearms and retreat extolling the virtues of Dr. Lynch and vowing to try to put that no good son of theirs on the right track.

Master-of-men, perhaps, when the situation demanded, but worker-with-men by custom and temperament. It becomes apparent then that a man with vision attuned to the times and possessing those faculties of reason, cajolery, and forceful persuasion was necessary to introduce a new era in medical education and service in South Carolina. It is extremely doubtful; in fact, it is undoubtedly true that only such a man as Dr. Lynch would have been capable of overcoming divergent views, entrenched obstructionism, and uninformed apathy in order to move in a progressive and impressive fashion. The manner of growth in the educational research and service area of the Medical College is well typified by the Department of Pathology where my association and knowledge of Dr. Lynch has been the

closest. When I joined the department in 1940, I was intrigued by the creaking, clacking noises which emanated from Dr. Lynch's inner sanctum. These originated from an ancient typewriter; undoubtedly, a refugee from the Smithsonian Institute and none the less remarkable was the fact that it was operated by Dr. Lynch himself. Even more startling was the fact that it soon became obvious that I, too, was going to be launched into the secretarial field. Upon completion of my first autopsy and being eager to record my findings, I inquired of the one other doctor in the department other than Dr. Lynch as to who was going to transcribe my protocol. He stared me straight in the face and made no reply other than to point a finger at my chest and then at another typewriter not quite as ancient as the one that Dr. Lynch used himself. It was obvious that such must be the case because there were no clerk typists or secretaries in sight. There was obviously need for an expansion program! Fortunately, there were a few technicians and I did not have to perform the entire complex process of making the microscopic preparations in addition to the study of it through the microscope, making a diagnosis and writing the report as Dr. Lynch did in 1913. There is at present in the Department of Pathology the original furnishings of this department — a 3 by 2½ foot ornate little table which Dr. Lynch obtained from a second hand furniture store for $1.50.

In the now massive shelves of permanently bound records of the Department of Pathology there stands a single little volume containing the report on the first pathological examination ever made at the Medical College of South Carolina and the first ever made in South Carolina, so far as is known. That report Number 1, dated September 25, 1913, was written and signed by Kenneth M. Lynch, M. D.

That first thin volume is numbered from 1 to 194, covering a period from September 25, 1913 to December 31, 1914, fifteen months. The last bound volumes of these pathological reports, for the year 1960 count 26 thick volumes. In 1913 during the first year of Dr. Lynch's tenure, 91 autopsies were performed in the Department of Pathology. A steady increment has occurred so that in 1960, 600 were done including 25 during Christmas week and 7 on New Year's Day.

One of the prospects which brought him back after he had been away for a few years was promoted by the Duke Endowment. In its program of contributing to hospitals for improvement of their services an arrangement was made by which small hospitals which could not hope to procure or support a resident pathologist could secure that service in South Carolina at the Medical College with the resultant elevation of standards of patient care. Such pathological service is recognized as the gauge of quality of medical service in a hospital, and the controlling check upon unnecessary and unwarranted surgery. When nothing was being done in 1913 to a time when every hospital in the state is covered either by its own pathologist or still makes use of this important service is one of the near miracles of present-day medicine.

While anatomy, chemistry, microbiology, physiology and pharmacology are the basic sciences in medical education, pathology is the foundation of any understanding of disease processes. It provides the bridge from the basic sciences to clinical medicine, to the care of sick in practice, to the fields of diagnosis and treatment. As I told my medical class the other day, they all had to be pathologists of sorts, because if not they could never understand the ailments of patients and how to care for them. Dr. Lynch began with literally nothing. The first routine course was begun, as is usual, in the sophomore year; but, immediately he was asked by members of both the junior and senior classes to give them an unscheduled course. They were even willing to spend night hours at it, and so was he. So, in his first year here he did three years teaching.

Dr. Lynch has long been aware that the human mind is the most complex mechanism which may be mass produced by unskilled labor. Perhaps this never-ending source of supply partially accounts for his dedication to the teaching of medical students.

As a teacher Dr. Lynch was renowned for

his concise, logical and stimulating presentations, but probably even more than this his students realized he was a constant guardian of their welfare. He never lost sight of the fact that the students were the most important components of a medical college. This would not appear to be a particularly profound observation, but it is startling to discover how they may be overshadowed within the complexities of a modern day medical center.

A while ago I asked him to give a lecture to my class, and for the first time I heard a class at this institution applaud a faculty lecturer.

Altogether his teaching gained such national repute that twice the American Medical Association invited him to write articles on particulars of his course for publication in the Journal of that Association.

In the periodic reports of the national accreditation agencies on the rating of the School of Medicine, you might easily deduce that the Department of Pathology here was the pillar of support of the entire school; it was always rated with the best. More than once it was boldly stated that Dr. Lynch was doing an outstanding job under impossible conditions.

He had begun his researches at Pennsylvania; he has never closed them out. Although his administrative work as head of the institution reduced his research time considerably, and while he had to enlist the interest and help of assistants, even today he has several experimental investigations going.

From this work he has published over 100 articles and reports in scientific medical journals. It also led to invitations which caused him to write two books and to collaborate on others.

It has won him numerous honors, including awards, citations, official positions and honorary degrees. In line with it he is an active member of 23 or more scientific and medical associations, in most of which he served in high official position, having been president of three major societies in a single year. In a history of the Southern Medical Association published in 1956 his name appears seven times as "indelibly associated with contributions in the area of human disease", and he has been honored since that year with its Distinguished Service Award and Medal, its Diamond Jubilee Key and its Certificate of Appreciation. In fact, his name will be found in almost any index volumes of periodicals of reference books in his fields of scientific activity published in the last 45 years or so, as well as in practically every "Who's Who" known.

As recognition of his position in the world of scientific research it should be a matter of conscious pride to him as well as of great significance to his institution and South Carolina, including its medical profession, that he is now serving on two national scientific boards related to judgment, direction and support of scientific research in institutions throughout North America and scattered through other countries. He has the unique distinction of being the only member of either of these boards chosen from the South; he is chairman of one of them.

While his research has been quite diversified, in scanning the subjects of his publications there are certain groupings which might be made.

The first is in the subject of parasitic diseases, in which he is recorded as the first investigator ever to cultivate a certain one-celled animal parasite outside the body of its human host; the first to grow it in a test tube on artificial nutriment of his own devising, and thus to study its life history, and to experiment with it.

From his researches in this field, Dr. Lynch came into close acquaintance with scientists over the world. He was elected president of the American Society of Tropical Medicine, and he received many honors and awards. His book, a monograph on certain parasitic conditions, written at the invitation of one of our greatest publishing houses, remains an authoritative work in its field.

The second field of medicine in which he attained authority stature is one in which his researches here are now almost forgotten except in medical publications of permanence, and yet they played a leading role in the practical obliteration of a once prevalent disease

which crowded the wards of our hospitals with patients for whom little or nothing could then be done, and which caused great suffering and cost many lives and thousands upon thousands of dollars annually. It was one of these unmentionable diseases like syphilis, granuloma inguinale. It was generally not recognized as a specific disease in this country prior to the research work done here simultaneously but independently with that of Dr. Douglas Symmers at Bellevue Hospital in New York.

Dr. Lynch became interested in the matter, as a distressing bugbear in the wards of Roper Hospital. He traced down a report from South America, where it was said to respond to treatment with antimony. After determining the true nature of the disease by bacteriologic and pathologic examination, and finding no antimony product available for appropriate use, he made his own experimental solution from "tartar emetic", an antimony salt, and secured permission to treat these patients, who you may be sure other staff members were glad to have taken off their hands.

This was one of the earliest successful specific chemotherapeutic treatments done in this country.

He took a "Scientific Exhibit" to Boston, the first ever presented from this school before that monstrous organization, the American Medical Association and was nonplussed when he returned from reading his program paper to see a sign hung in his booth reading "GOLD MEDAL". He thought some facetious friend had hung it there because of the nature of his pictures. But it was real; he still has it, you may be sure, among a collection of others, the only ones ever won from here.

The third major subject of his researches which has brought recognition of Dr. Lynch as an authority in a special field will illustrate his versatility and his alertness to pick up a clue in his routine work and follow it through to uncover factors of disease-causing nature not previously known or understood.

Among the great industries of this country and throughout civilization, there are many procedures requiring the fractionation or the physical reconstitution of crude materials into finished products. These processes may expose workers in the processing plants to harmful byproducts. Some of these substances are in the form of dust particles; some are gases and invisible. Air pollution may occur in many ways and while Dr. Lynch has become widely known in the subject as a whole, he is recognized as an authority on industrial dust diseases.

In one of our major industries, he was a pioneer investigator in determining the nature and the effects of a disease caused by breathing the contaminated air by workers in the mines and factories, and he has served over the country in advising the industry in safety control measures. As a result of studies by him and by other investigators over the country, a danger to the thousands of workers in this industry, formerly exposed to the development of a disabling and finally fatal disease, asbestosis has been brought under control. A hazard to the industry itself has been removed and incalculable losses in health, life, and money avoided.

In another similar industry of importance to this region, he was the first to report a description of the disease concerned and the application of the same type of safety measures has brought that hazard under control.

At the Medical College, Dr. Lynch was given the first money grant ever received there in support of medical research although he has never received any pay for research himself. He secured the means for the construction of the great building, soon to arise here, to provide quarters for the important program of medical research now going on.

Although the list of subjects of his numerous published papers exhibits a great versatility and covers much more area than can be touched upon here, there are some significant items which should be mentioned. For instance, his researches in pellagra, in leprosy, in filariasis — once prevalent in the Charleston area, as the only focus in this country; his report of the fatal effects of a drug product called "Elixir of Sulphanilimide" which, joined with simultaneous reports from other places, caused an emergency search and confiscation of all of this medicine, to prevent further deaths by its use.

Not because of his more recent research, but as a thread which runs through his entire career comes his real primary research and professional challenge — cancer. He says, "I don't know the cause of cancer, nor do I know of anyone who does". One of his personally conducted experimental researches, now in its 30th year of continuous devotion and the project which was awarded the first financial grant support ever received here, is in connection with cancer of the lung. Many of his published papers concern the question, or questions, of cancer. In fact, most of his diagnostic interest in the pathological examinations he has done during his entire professional career has been centered about the enigma of cancer.

Always an outdoorsman, he is still a hunter and a surf fisherman. Living in Summerville he has at his home there an establishment unique in the world, in natural history and wildlife study — a colony of the only pure strain, native wild turkey ever raised in close captivity, now in its twelfth year and as many generations. While this colony is so completely isolated, screened and padlocked that even members of his family have never seen these magnificent birds, he occasionally admits individuals who come from far away to see and hear about the experiment.

He wanted to find out why our Thanksgiving table turkey had to come from Mexico, all the way through Europe, why our colonist ancestors did not domesticate our native turkey. He wanted to know why game commission turkeys and birds for restocking need to be cross breeds, why the pure strain of the only native American pheasant has almost become extinct. He is studying their habits, their traits, their prospects of survival and return to their native woods. He is also experimenting with control of the dread disease of turkeys, "Blackhead", the hazard of commercial turkey raising. He hopes to write a book about them, telling the story that has never been recorded. I have eaten a few of these wild turkeys believing at the time that they were of original native stock. I have since suspected from conversations with him that they were derived from eggs and birds given him that proved to be "tainted" strains — I have the feeling that I have still to taste the real McCoy, for he ruthlessly weeded out all unpure strains, but jealously protected his aristocrats.

It is customary for many families to transport children, dogs, parakeets and other pets to vacation spots. Dr. Lynch is undoubtedly the only individual who ever took flocks of wild turkeys on vacation with him. I remember well the occasions when he loaned me his beach cottage outfitted with these birds and how I prepared salads for them from chopped "turkey weed" growing in the vicinity. There too, among the great pines, oaks, azaleas, and other shrubs and trees, he and Mrs. Lynch have raised by hand several thousand camellias in grounds which have become a show place of the Low Country. Here they experiment with seedlings grafting and cross-breeding.

Though this is only a brief synopsis and analysis of the career of a typical American of the pioneering type, it may give some explanation for his motivation, some insight into his personal traits, and shed light as to how and why his "Expansion Program" built the present-day Medical College of South Carolina to a foremost position as a modern health and medical educational, training, research and service center — of the story of Kenneth M. Lynch, Doctor of Medicine, Doctor of Science, Doctor of Laws, pathologist, medical teacher, medical school builder extraordinary, the most unforgettable and diversified personality I have ever met.

News

COLUMBIA MEDICAL SOCIETY JANUARY SCIENTIFIC MEETING

The Columbia Medical Society was honored to have as its guest speaker for the January Scientific Meeting Dr. Joseph P. Cain, President of the South Carolina Medical Association, who spoke on the subject "The South Carolina Medical Association and Its Outlook for the Sixties".

The program was carried to the Kershaw County Medical Society at Camden by telephone.

Dr. Cain traced the history of the South Carolina Medical Association since it was founded in 1848, when there were 721 doctors for the 700,000 population in South Carolina.

Emphasizing the strength and responsibility the county medical societies have in formulating the policies of organized medicine, he pointed out that the American Medical Association formulates its policies and receives its authority from the state organizations, and the state organizations from the county societies.

Points covered in Dr. Cain's talk included the following: (1) Medical Education (2) Civil Defense (3) Social problems, re-emphasizing the primary aim of the medical profession to give everyone in South Carolina the best possible medical care, both before and after age 65; (4) Pre-paid medical insurance as the answer to the so-called high cost of medical care; (5) Public Relations, and the physician's image as reflected in the eyes of the public. He emphasized that all the public relations programs of medical associations would not be effective unless the individual doctors measured up in the personal relationship with their patients, thereby creating a warm and sympathetic image of the profession. "The image of the physician is not a shadow, but the way he is reflected in the eyes of his fellow men."

Following his talk, Dr. Cain responded to questions from the floor.

Dr. E. K. Aycock, Columbia pediatrician, was the local speaker of the evening. The subject of his scientific presentation was "Current Uses of Gamma Globulin with Special Consideration of Hypo-gammaglobulinemia".

* * * * *

Dr. Weston C. Cook was installed as President of the Society at a joint dinner meeting preceding the scientific program. Other officers for 1961 are: Dr. James T. Green, President-Elect; Dr. Joe E. Freed, Vice-President; Dr. Charles R. Sloan, Secretary; Dr. Waitus O. Tanner, Treasurer; Dr. P. F. LaBorde, Editor, *The Recorder*.

Dr. W. A. Hart, retiring president, was presented with an appreciation plaque from the Society in recognition of his service to the community and to the medical profession. From the Woman's Auxiliary Dr. Hart received a scrapbook of the activities of his administration.

Two physicians of Columbia were honored for having served for 50 years as physicians in South Carolina. Gold pins were presented by Dr. Joseph P. Cain honoring Dr. Marion Wyman and Dr. T. M. DuBose. Dr. DuBose's was received posthumously. It was accepted by his son, Dr. Hugh H. DuBose. Dr. Wyman and Dr. DuBose were graduated together from the Medical College of South Carolina class of 1910.

* * * * *

Following the joint dinner meeting, the two groups separated for their programs. Mrs. George W. Smith, Jr., State President of the Woman's Auxiliary, addressed the women on "Objectives of the National Auxiliary".

Officers of the Woman's Auxiliary are: Mrs. C. Tucker Weston, President; Mrs. R. C. Slocum, President-Elect; Mrs. P. F. LaBorde, Vice-President; Mrs. R. G. Latimer, Recording Secretary; Mrs. W. M. Barr, Corresponding Secretary; and Mrs. Penrod G. Hepfer, Treasurer.

EYE CARE

A greatly expanded program of information to the public on the meaning and value of good eye care is planned for 1961 by the National Medical Foundation for Eye Care. The Foundation was organized in 1956 as a public educational agency for American ophthalmology, and most of its 3,000 members are Diplomates of the American Board of Ophthalmology.

The Foundation's public information program has several main features: 1) a series of monographs on major socio-economic and organizational problems confronting ophthalmology. These are widely distributed to editors, publicists and other "opinion makers"; 2) a series of popular pamphlets on eye care topics, of which nearly 3,000,000 copies have been distributed during the past four years largely through physicians' offices; 3) an informational and advisory service for popular magazine editors and science writers; and 4) periodic stories and educational material for medical journals, newspapers and radio-TV outlets.

Contributions to Easter Seals help finance a national research program seeking out clues to prevention and treatment of crippling conditions and rehabilitation of the physically handicapped.

NEW MEDICAL BUILDING PLANNED IN ANDERSON

A medical office building of more than 6,000 square feet will be built at Greenville Street and Boulevard, in Anderson.

The building will provide offices for Dr. C. H. Young, Dr. J. R. Young, Dr. J. H. Young, Dr. Claud Perry and Dr. Charles Bailes, all of whom are members of a firm with offices now located in the Professional Building. Some space in the building will be available for rent to other doctors.

There will be 53 rooms in the building, which will measure 130 feet by 50 feet. It will face Greenville Street, but cars will enter the parking lot from Boulevard.

DR. W. T. GIBSON HONORED

Dr. William Thornwell Gibson of Batesburg was recently honored by an article in the *Twin City News* on the occasion of his 77th birthday. The article cited Dr. Gibson for his long and faithful service, stating: "We feel that your thousands of friends would be keenly interested in your life which has touched so many," and states that Dr. Gibson had delivered between 4,000 and 5,000 babies, "more than the population of Batesburg."

Dr. Gibson was born in Marion County, S. C. on a plantation between Centenary and Mullins. He came to Batesburg on March 10, 1910, driving in a horse and buggy. He has practiced for 50 years in his chosen community. He is a member of the Ridge Medical Association, the District Medical Association and honorary member of the South Carolina and American Medical Associations. One of Dr. Gibson's sons, Dr. Henry W. Gibson, followed in the footsteps of his father and is a general practitioner in Barnwell.

DR. ROSENFELD NEW HEALTH OFFICER IN DARLINGTON

Dr. Abraham P. Rosenfeld became full-time Health Officer in Darlington County effective December 2. He replaces Dr. O. A. Alexander, who resigned several months ago.

Dr. Rosenfeld is a native of New York. He received his medical degree from the Medical College of the University of Vermont and has been engaged in general practice in Darlington since 1938.

Lee M. Keach, M. D. announces the opening of his office for the practice of general medicine at 526 Maybank Highway, Riverland Terrace, Charleston.

Dr. Samuel Roscoe Moorhead of Anderson has been certified by the American Board of Pediatrics.

DR. BARNEY TIMMONS NAMED CHIEF OF STAFF

Dr. Barney F. Timmons was elected chief of staff of Byerly Hospital at the annual meeting of the medical staff held in November. Dr. Kenneth W. Krueger was elected assistant chief of staff and Dr. E. S. Williams was elected staff secretary.

Dr. Timmons is a graduate of the University of South Carolina and received his degree in medicine from the Medical College of South Carolina in 1945.

He served his internship at Jersey City Medical Center in 1945-46 and then entered the Army Medical Corps with the rank of captain and saw war-time service in Korea during 1946-48.

He took residency training in diseases of the eye, ear, nose and throat at Duke University Medical Center in 1949-52 and was an instructor in 1953 in the department of ophthalmology at the Duke Medical School.

Dr. Timmons entered private practice in Hartsville in 1954, specializing in diseases of the eye, ear, nose and throat.

Dr. Timmons is a member of the South Carolina Medical Association, American Medical Association, Southern Medical Association, Hartsville Exchange Club, and he is an examiner for the Civil Aeronautics Administration.

CHEST PHYSICIANS ESTABLISH FUND TO ASSIST CUBAN MEMBERS

At the meeting of the Board of Regents of the American College of Chest Physicians held in Washington, D. C. on November 28, 1960, a resolution was adopted to establish a relief fund for Cuban members of the College who have been exiled temporarily from their country. The Board of Regents voted to contribute $5,000 to launch the fund and contributions are being solicited from College members and others who are interested. The Cuban Chapter of the College was founded in 1940 and now has 74 members.

Dr. Daniel L. Maguire, Jr. has announced the reopening of his office for the practice of general surgery at 189 Calhoun Street, Charleston, S. C.

PICKENS COUNTY MEDICAL SOCIETY ELECTS OFFICERS

New officers of the Pickens County Medical Society were elected at the quarterly meeting in Pickens, headed by Dr. John M. Harden of Pickens as president.

Others named were: Dr. W. J. Goudelock of Easley, vice-president; and Dr. J. K. Holcombe of Liberty, secretary-treasurer. Dr. J. H. Cutchin of Easley and Dr. Sydney A. Garrett of Pickens were chosen delegates to the State Medical Convention, and Dr. J. A. White of Easley, alternate. Dr. William Hilton, Jr. of Liberty, retiring president, was named to the Board of Censors.

DR. J. L. SANDERS RETIRES

Dr. J. L. Sanders has retired from the practice of medicine, the Greenville County Medical Society has announced.

His retirement was effective December 1.

Dr. Sanders began his practice in Greenville in 1922, following his training at the Medical College of South Carolina, the New York Eye and Ear Hospital and Cornell University, the University of Minnesota, and the Mayo Clinic.

SPARTANBURG MEDICAL SOCIETY ELECTS HAMMOND

Dr. Wardlaw Hammond of Spartanburg has been elected president of the Spartanburg County Medical Society.

He succeeds Dr. Edwin Cochran of Spartanburg. Other officers are Dr. Charles Hanna, president elect for 1962; Dr. Vernon Jeffords, secretary; and Dr. Sam Fleming, treasurer.

DR. GAZES TAKES MEDICAL COLLEGE POST

Authorities at the Medical College of South Carolina announce that Dr. Peter C. Gazes has become associated with the full-time faculty, specializing in cardiovascular diseases. He will discontinue private practice.

Dr. Gazes, a native of St. Matthews, is a graduate of the Medical College of South Carolina and has been associated with the college on a part-time status in both the departments of Pharmacology and Medicine since completion of his specialty training in cardiology at Philadelphia General Hospital in 1949.

He is certified by American Board of Internal Medicine and the American Board of Cardiology.

C. Ford Rivers, Jr., M. D., of Charleston, has announced the limitation of his practice to cardiovascular diseases.

NEW MARION COUNTY OFFICERS

At a recent meeting of the Marion County Medical Society, the following new officers were elected:
President, Dr. Charles R. Elvington, Nichols.
President-Elect, Dr. J. B. Berry, Marion.
Vice-President, Dr. Ira Barth, Marion.
Secretary-Treasurer, Dr. M. Edward Rice, Mullins.

CHARLESTON COUNTY OFFICERS ELECTED

The following officers were elected at the meeting of the Charleston County Medical Society on November 8.
President, Dr. William M. McCord
Vice President, Dr. Joseph I. Waring
Secretary-Treasurer, Dr. R. Maxwell Anderson

DR. BANOV NOMINATED FOR LASKER AWARD IN PUBLIC HEALTH

The name of Dr. Leon Banov, Director of the Charleston County Health Department, has been submitted to the American Public Health Association for consideration for the Lasker Award in Public Health for 1961.

His nomination is based on the following achievements. In 1919 he secured passage of an ordinance which enabled Charleston to be the first city in the world to require pasteurization of all market milk.

He was primarily responsible for construction of Pinehaven, Charleston County's Sanatorium for tuberculosis patients.

Through pioneering work he has brought the Charleston metropolitan area of some 200,000 population into the forefront of communities of America in public health.

In the year he became County Health Officer, 1920, there were 201 reported cases of smallpox in Charleston. Ten years later only one case was reported. None has been reported in the last 30 years.

In 1920 the infant mortality rate in the city of Charleston was 87.7 per 1,000 live births for whites and 328.7 for non-whites. In 1956 the comparable rates were 27.7 for whites and 50.3 for non-whites.

In 1920 the maternal mortality rate was 3.3 per 1,000 live births for whites and 17.7 for non-whites. In 1956 these rates were 0.4 for whites and 0.0 for non-whites.

NUTRITION SYMPOSIUM HELD AT MEDICAL COLLEGE

"Nutrition Advances Affecting Community and Individual Health" was the theme of the Nutrition Symposium held January 24-25 in the Baruch Auditorium of the Medical College in Charleston.

John Youmans, M. D., Director, Division of Scientific Activities, American Medical Association, was one of the prominent speakers. Phillip White, M. D., also of the American Medical Association, spoke on food contaminants and the influences of food processing on health. Hazel Stiebling, Ph. D., Chief, Institute of Home Economics and Human Nutrition also contributed to the program.

Visits to the research laboratories of the Medical College were an interesting feature. The Symposium was sponsored by the South Carolina State Nutrition Committee in cooperation with the Medical College.

The Program Committee was composed of Vince Moseley, M. D., Dean of the Medical College; Hilla Sheriff, M. D., Director of the Division of Maternal and Child Health, State Board of Health; Janie McDill, Extension Service Nutritionist; and Margaret Freeman, Health Department Dietitian.

POLIO AND THE NATIONAL FOUNDATION

The state of South Carolina has been the principal beneficiary in the allocation of March of Dimes funds raised in the state over the past 23 years, it was disclosed recently in a financial summary prepared by The National Foundation.

More than 57 cents of every dollar from South Carolina's March of Dimes has been put to use in aiding the state's disease victims. Of the remaining 43 per cent accruing to the national headquarters, a considerable amount also has come back to South Carolina in shipments of polio vaccine and gamma globulin and in other nationwide services conducted by The National Foundation.

The summary covers the period since the first March of Dimes was held in January, 1938, and compares the net total of funds raised in the state with amounts made available to South Carolina through September 30, 1960.

In this period, South Carolina chapters of the March of Dimes organization raised a net total of $4,404,984.62 at an average fund-raising cost of less than 8 per cent. Of this amount, $2,500,861.55 has been available to the county chapters in carrying out their extensive patient aid programs, including advances of $719,150.90 from the national office to meet local emergency situations.

Over and above the 57 per cent used by county chapters in the state, The National Foundation has financed within the state projects such as the historic field trials which proved the effectiveness of the Salk vaccine, epidemiological studies and scholarship or fellowship grants to South Carolina residents. National headquarters' expenditures for the vaccine trials in South Carolina amounted to $28,536.11. In addition, the national office has sent into South Carolina $96,255.69 worth of Salk vaccine in support of its polio prevention programs.

The scientific research program which developed polio vaccines was financed by the national office's share of contributions.

Two years ago, the National Foundation for Infantile Paralysis changed its name to The National Foundation in expanding its areas of interest beyond polio to include certain birth defects and arthritis, using the scientific knowledge and experience gained in the fight against polio.

The New March of Dimes took place throughout the month of January.

THE MONTH IN WASHINGTON

Spokesmen for the medical profession at the White House Conference on Aging supported the Kerr-Mills voluntary program for health care of elderly persons as an efficient, economical way to furnish assistance to those who need help.

Leading physician delegates to the Conference also continued vigorous opposition to the Social Security approach espoused by organized labor.

Continuing their all-out campaign for the Social Security approach, labor union leaders used the Conference as a forum for further attacks on the medical profession.

Dr. J. Lafe Ludwig of Los Angeles, Chairman of the American Medical Association Council on Medical Service told a pre-Conference meeting of the physician delegates that it would be a "national tragedy—unfair to old and young alike—if the Kerr-Mills law should be shelved for a Social Security plan for medical care of the aged.

"Federal medicine would mean red tape, bureaucratic control, and high costs," Dr. Ludwig said. "Most important of all, it would mean inferior medical care for the people whom we are trying to help."

Describing the Kerr-Mills law as a "historic milestone," Dr. Ludwig said the "overwhelming majority" of the nation's physicians believe it is "an excellent law which can and will work and deserves every opportunity to do so."

Dr. Leonard W. Larson of Bismarck, N. D., president-elect of the A.M.A., told the Conference's Health and Medical Care Section that more attention must be given to keeping older persons healthy. He was chairman of the section.

"We spend millions of dollars and hours developing sound, well-based programs for care of the sick, but at the same time we virtually ignore the vast opportunities for preservation and promotion of health," Dr. Larson said.

"We must do more than react to the minority of older persons who are ill—we must act for the great majority who are well."

In a statement issued in Chicago, Dr. E. Vincent Askey of Los Angeles, President of A.M.A., branded as false an allegation that the White House Conference has been "captured" by organized medicine, private insurance and business interests. Dr. Askey specifically referred to such a charge made by Prof. Wilbur J. Cohen of the University of Michigan but the A.M.A. president's statement applied to similar charges made by representatives of organized labor.

Dr. Askey implied that, "if anyone has a legitimate complaint regarding the choice of personnel directing the activities" of the key section on income maintenance, it was opponents of the Social Security approach.

Dr. Ludwig also answered organized labor's attacks on the A.M.A. at the Conference. Dr. Ludwig accused George Meany, president of the AFL-CIO, of "attempting to undermine" the Conference to "further his own partisan interests."

"Meany obviously is prepared to go to any extreme to impugn the motives of those who disagree with him," Dr. Ludwig said. "Delegates to this conference representing medicine and many other groups came here in a spirit of cooperation determined to take realistic action to help the elder citizens of this country.

"Meany, through his campaign of smear and hostility, is making this difficult, if not impossible."

Dr. Ludwig said that some labor leaders "obviously are more interested in saddling the people of this country with a system of socialized medicine" than he is in "helping those older people who really need help."

"Meany and such of his cohorts as Sen. Pat McNamara (D., Mich.) appear to be doing their utmost to create so much confusion that recommendations of the State Conference on Aging will be forgotten," Dr. Ludwig said.

"Of the 30 states making specific recommendations regarding financing of medical care for the aged, only 10 favored the Social Security tax."

President Eisenhower urged the 2,700 delegates to the Conference to reconcile their differing views and agree on a sound program. He told the delegates it was their responsibility to provide "some kind of guidance for Congress to use in its future deliberations."

President John F. Kennedy declined an invitation to address the Conference as President-elect. He and Congressional Democratic leaders decided weeks before the Conference to make medical care for the aged under Social Security an Administration priority bill for early submission to Congress.

But some key Democrats in Congress announced they would not go along with President Kennedy on the issue. Sen. Robert S. Kerr (D., Okla.), co-author of the medical-care-for-the-aged program approved by Congress last year, said it should be financed by a general tax—"not a limited tax like Social Security."

Similar opposition to the Social Security approach was expressed by Sen. John J. Sparkman (D., Ala.). Chairman Harry F. Byrd (D., Va.) of the Senate Finance Committee earlier had said he was convinced that providing medical care for the aged under Social Security would lead to socialized medicine and possibly bankrupt the Social Security trust fund.

Despite the Kennedy Administration's espousal of the Social Security plan, the A.M.A. pledged its continued cooperation to the Department of Health, Education and Welfare on other health programs.

A group of A.M.A. officials headed by Dr. Askey told the news H. E. W. secretary, former Gov. Abraham Ribicoff of Connecticut, at a pre-inaugural conference that the Association "pledges its continued cooperation to H. E. W. to work for the best medical care for the nation." The A.M.A. "has always had a deep sense of responsibility for the health needs of the people," Dr. Askey said.

The A.M.A. officials also advised Ribicoff that they would help implement the Kerr-Mills law in any way possible.

More than 1,400 Easter Seal clinics, treatment centers, rehabilitation centers, and programs of care and treatment help crippled children by teaching them to walk, talk and live like other children. You can join the fight against crippling by supporting Easter Seals.

Eight-year-old twin sisters, Patricia (left) and Paula Webber of Sumter, South Carolina, share honors as 1961 National Easter Seal Twins for the National Society for Crippled Children and Adults. Paula, born with a crippling handicap, has received care and treatment from Easter Seal Centers throughout the U. S. wherever her father, Air Force Captain Robert F. Webber, has been stationed. It is the first time twins have been picked to represent the nation's crippled children in the annual appeal for Easter Seal funds to help finance rehabilitation services. The 1961 Easter Seal campaign opens March 2 and continues through April 2, Easter Sunday.

9 NEW DOCTORS LICENSED

The State Board of Medical Examiners of South Carolina has announced that nine persons passed examinations given last month and have been licensed.

The new physicians are:

Drs. Harold D. Belk of Pageland; Karl Doskocil of Danville, Ky.; John C. Dunlap of Rock Hill; Lawrence A. Heavrin of Charleston; Samuel V. Johnson of Manning; Marion B. Kennedy, Jr. of Orangeburg; John P. Matthews, Jr. of Lake City; Count Pulaski, Jr. of Hampton; and John H. Riley, II of Columbia.

(Continued from page 68)

CLINICS IN ELECTROCARDIOGRAPHY. By Dale Groom, M. D., Pp. 152. Charles C. Thomas, Publisher, Springfield, Ill., 1960. Price $8.00.

Dr. Groom's book is in essence a compilation of a series of articles which have been appearing in the *Journal of the South Carolina Medical Association* for the past four years. It is an interesting and very readable book, which according to the author has been designed "for busy clinicians and students".

Actually it covers more than straight-forward electrocardiogram interpretation. Each short chapter includes a case history, the illustrative electrocardiogram with the author's interpretation, a general discussion of the mechanism of the changes in similar electrocardiograms, and oftentimes necropsy and operative findings. All of the common and several of the rare disease states associated with electrocardiographic abnormalities are covered. In the chapter on hypokalemia several causes for this condition are listed, but I was a little surprised to note the absence of the use of diuretics and particularly the more recent oral diuretics as an etiologic factor. It is noted, however, that this is brought out in a later chapter on paroxysmal atrial tachycardia with block. In this same chapter, page 112, "presystolic attenuation" should read "presystolic accentuation". On page 78, line 18, "virture" should read "virtue".

It should be emphasized that this book must be supplemented by one of the several books on electrocardiography already in print. It does not fill a "long felt need", but it is sufficiently interesting to stimulate the average practitioner to study other more comprehensive texts.

R. C. Smith, M. D.

Announcements

A Symposium on "THYROID DISEASES — DIAGNOSIS & TREATMENT"

One of the 1960-61 Circuit Courses of the Department of Postgraduate Education of the Medical College of South Carolina

AT: Marion, South Carolina (Marion County Memorial Hospital, 1108 North Main Street)
February 28, 1961 6:00 - 10:00 P. M.

SCHEDULE:

Symposium begins at 6:00 P. M. sharp
Refreshments and dinner 7:30 to 8:30 P. M.
Discussion 8:30 to 10:00 P. M.

FACULTY:

Dr. John Buse, Assistant Professor of Medicine
Dr. Maria Buse, Instructor in Chemistry
Dr. Randolph Bradham, Assistant Professor of Surgery
Dr. Dale Groom, Assistant Professor of Medicine, Moderator

Approved for 3½ hours credit, Category I, by the Academy of General Practice.

MEDICAL COLLEGE OF GEORGIA

Two post-graduate courses are planned for February and March of 1961 at the Medical College of Georgia. Featured faculty will include Dr. Edgar A. Hines, Jr. vascular disease authority from the Mayo Clinic and Dr. Buford Word, Professor of Gynecology from the Medical College of Alabama.

"Management of Your Patient with Vascular Disease" is scheduled for February 28, March 1, 2, 1961 and "Gynecology in General Practice" will be held March 21, 22, 23, 1961. The featured speakers will be supplemented by members of the faculty of the Medical College of Georgia.

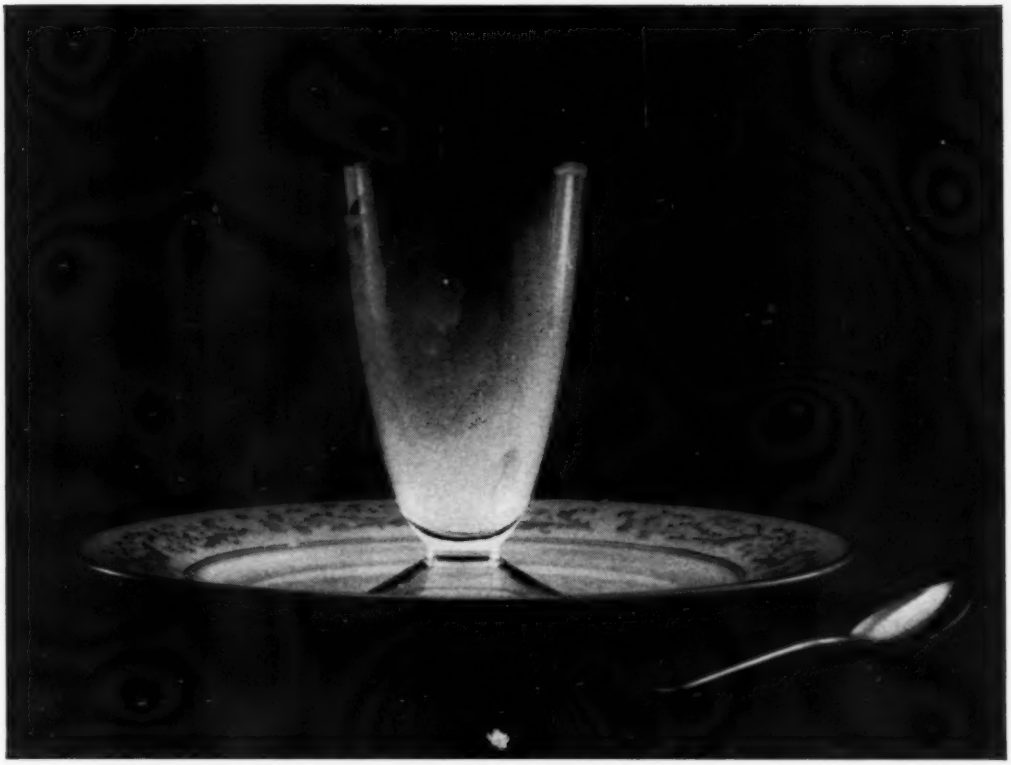
Each course is acceptable for 18 hours of credit by the American Academy of General Practice. Registration fee is $50.00 for each session. Application may be made by contacting Dr. Claude-Starr Wright, Director, Department of Continuing Education, Medical College of Georgia.

The Gill Memorial Eye, Ear and Throat Hospital will hold its Thirty-Fourth Spring Congress in Ophthalmology and Otolaryngology and Allied Specialties, April 3 through April 8, 1961. There will be twenty guest speakers and fifty lectures.

The Southeastern Chapter of The Society of Nuclear Medicine will hold its 2nd annual meeting in Atlanta, Georgia on March 10 and 11, 1961 in the auditorium of The Academy of Medicine.

The West Virginia Academy of Ophthalmology and Otolaryngology will hold its annual meeting at the Greenbrier Hotel, White Sulphur Springs, West Virginia on April 6th, 7th, and 8th of 1961.

For additional information please contact the secretary, Dr. Worthy W. McKinney, 109 East Main Street, Beckley, West Virginia.



does the bowel take kindly to no-bulk diets?

The bowel, designed to operate best under the stimulus of a bolus of waste, is seldom at rest under normal conditions. But the new bulkless liquid diets which have taken the country by storm, although they may be a useful road to weight loss, may also lead to constipation or bowel irregularities.

Metamucil adds a soft, bland bulk to the bowel contents to stimulate normal peristalsis and also retain water within the stools to keep them soft and easy to pass. Thus Metamucil, with an adequate water intake, will avert or correct constipation in the dieting patient. Metamucil also promotes regularity through "smoothage" in all types of constipation.

SEARLE

Metamucil®

brand of psyllium hydrophilic mucilloid

Available as Metamucil powder in 4, 8 and 16 oz. cans, or as the new lemon-flavored Instant Mix Metamucil in cartons of 16 or 30 measured-dose packets.

The New Orleans Graduate Medical Assembly announces its twenty-fourth annual meeting to be held March 6-9, 1961. The program is acceptable for a maximum of 27½ hours, Category I postgraduate education by the American Academy of General Practice.

Information may be obtained from:
The New Orleans Graduate Medical Assembly
1430 Tulane Avenue
New Orleans 12, La.

The Southeastern Surgical Congress will hold its twenty-ninth annual assembly March 6-9, 1961 at the Deauville Hotel in Miami Beach, Florida.

For further information write to:
A. H. Letton, M. D., Secretary-Director
The Southeastern Surgical Congress
340 Boulevard, N. E.
Atlanta 12, Ga.

THE MEDICAL COLLEGE OF SOUTH CAROLINA AND THE MEDICAL COLLEGE ALUMNI ASSOCIATION
Announce

A Post-Graduate Seminar — With Round-Table Discussions on Urinary Calculi, Metabolic and Clinical Aspects, A Regional Problem.

The Francis Marion Hotel
Charleston, South Carolina
Thursday, February 23, 1961

MORNING SESSION — Gold Room

Moderator: George Durst, M. D., Professor of General Practice, Medical College of South Carolina

10:00 Urinary Factors in Stone Formation
William Boyce, M. D.
Professor of Urology, The Bowman Gray School of Medicine

10:30 Metabolic Factors
Philip Henneman, M. D.
Associate Professor of Medicine, Seton Hall University Medical School

11:00 Recess — Coffee

11:15 Role of Infection
Ellard Yow, M. D.
Professor of Medicine Baylor University College of Medicine

12:00 Luncheon for physicians and wives — Colonial Room
Chairman: Dale Groom, M. D.
Assistant Professor of Medicine, Medical College of South Carolina

AFTERNOON ROUND-TABLE DISCUSSIONS

Urinary Factors in Stone Formation
William H. Boyce, M. D.
1:30—Jessamine Room
2:30—Belle Isle Room
3:30—Recess
3:45—Charleston Harbor Room
Moderator:
W. E. Brooks, M. D.
Assistant Professor of Urology,
Medical College of S. C.

Metabolic Factors
Philip H. Henneman, M. D.
1:30—Belle Isle Room
2:30—Charleston Harbor Room
3:30—Recess
3:45—Jessamine Room
Moderator:
Haskell S. Ellison, M. D.
Associate in Medicine, Medical College of S. C.

Role of Infection
Ellard M. Yow, M. D.
1:30—Charleston Harbor Room
2:30—Jessamine Room
3:30—Recess
3:45—Belle Isle Room
Moderator:
Cheves McC. Smythe, M. D.
Associate Professor of Medicine,
Medical College of S. C.

5:00 - 6:00 Reception—Gold Room

Wives of physicians are welcome and encouraged to attend.

ALL PHYSICIANS ARE INVITED TO ATTEND.

No fee is required for attendance at scientific sessions, luncheon or reception.

12th ANNUAL SCIENTIFIC SESSION
presented by
THE SOUTH CAROLINA HEART ASSOCIATION

Greenville, South Carolina
March 31 - April 1, 1961

GUEST LECTURERS WILL INCLUDE:

E. Stanley Crawford, M. D.
Baylor University
College of Medicine
Texas Medical Center

W. Proctor Harvey, M. D.
Associate Professor of Medicine
Chief Division of Cardiology
Georgetown University Hospital

Jack D. Myers, M. D.
Professor of Medicine
Chairman, Department of Medicine
University of Pittsburgh

Jeremiah Stamler, M. D.
Director, Heart Disease
Control Program
Chicago Board of Health

J. Scott Butterworth, M. D.
Associate Professor of Medicine
New York University Post-Graduate
Medical School
President-Elect American Heart Association

Special Activities Planned For The Ladies!